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ABSTRACT

These conference proceedings report on and review the Learning from Text Project activities that started in the fall of 1980, and by the end of the second year had expanded to three University of California (UC) and six California State University (CSU) campuses. Following a summary of the conference proceedings, an introduction describes the background of the project, which was developed in an attempt to study how college students interact with written text in their course materials in order to construct meaning from that text. This is followed by a report on learning from text in a classroom situation and a report of the CSU-Fullerton project. Next, three faculty members from the UC-Riverside campus provide three simultaneous seminars on learning from text at the university level. This is followed by reports on teaching strategies for learning from text. A description of the UC-Davis project is then followed by descriptions of collateral research projects on nine campuses. (HOD)

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Proceedings

of

Lake Arrowhead Conference

on

Learning from Text

April 14-16, 1982

Edited by

Harry Singer

UC Riverside

and

Tom Bean

CSU Fullerton

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Foreword

Foreword

The Learning from Text Project started in the fall of 1980. At the end of the second year, the Project had expanded to three UC and six CSU campuses. Each campus collected data on freshman students for the overall project and conducted a small scale study on learning from text on its own campus. Two campuses, UC Davis and CSU Fullerton, were engaged on their own campuses in separately funded research projects on learning from text. In order to provide an opportunity for all members of the Learning from Text Project (Co-chairs of the Joint Projects Steering Committee, Project Advisory Committee members, Campus Coordinators, and Campus Content Consultants) to meet for the purpose of communicating knowledge of research and teaching strategies on learning from text, reviewing project activities on each of the participating campuses, learning about the related Davis and Fullerton projects, and developing plans for 1982-83, we organized a conference that was held at the University of California's Lake Arrowhead Conference Center on April 14-16.

Almost all those invited to the Conference did attend. Representatives were present from UC Davis, Berkeley, and Riverside and CSU Sacramento, San Francisco, Dominguez Hills, Fullerton, San Bernardino, and San Diego. The participants and the campuses they represented made the conference a truly joint undertaking for the University of California and the Califonria State University Systems.

The task for the Learning from Text Project is huge. It involves two systems of higher education with 9 campuses in one system and 18 in

the other. The charge to the Project is to conduct research on learning from text at the university level and to find ways of improving students' ability to learn from text. Although knowledge on learning from text has been gleaned at the elementary and secondary levels, little knowledge is available on learning from text in the various academic areas at the university level. We think that learning from text at the university level is likely to be different, either qualitatively and/or quantitatively. If so, then we will have to determine how students acquire and can improve in ability to learn from text at the university level. Both types of research are likely to confirm one belief that every level of education has to instruct students in learning from text at a level that is appropriate for the resources of the students, the nature of the text, and the learning goals to be attained. We are pleased that the Conference Proceedings will enable us to share with faculty in the UC and CSU systems the knowledge we communicated, the ideas we shared, and the plans we made at the Lake Arrowhead Conference for furthering the objectives of the UC-CSU Joint Project on Learning from Text.

Harry Singer
Project Director
UC Riverside
July 1982

Summary of

Conference Proceedings

Summary of
Conference Proceedings

Harry Singer

The Learning from Text Project conducted a two-day session at the Lake Arrowhead Conference Center on April 14-16. Professor Michael Hoffman, English Department and Assistant to the Academic Vice Chancellor, UC Davis, who co-chairs the University of California and California State University Joint Projects Steering Committee, in his welcoming remarks, pointed out the charge to the project is to determine the relationship between learning from text and achievement in the UC and CSU systems and to find ways of improving that relationship.

Dean Deborah Hancock, CSU Bakersfield gave the background for the project. Professor Harry Singer, School of Education, UC Riverside, Project Director, then defined learning from text as involving a multiple set of factors, including student abilities and resources, charactersitics of texts, including lectures and books, assessment of achievement, and various aids to learning used by instructors, such as study guides and suggestions on strategies on how to think about course content and how to learn from text. He pointed out that each academic level from elementary school to the graudate level of instruction must teach students how to learn from texts. At the elementary level, teachers teach students how to read and begin to teach them how to learn from text. At the high school level, emphasis is on how to learn from

texts in different content areas. At the college and university levels, stress is on teaching students to explicate the theory or theories in their texts, understanding its structure and historical context, knowing its purpose and its implications, and evaluating texts.

An application of this approach to learning from text was exemplified by professors from the UC and CSU systems. Professor John Briggs, English department, UC Riverside, demonstrated how he teaches his students to learn from a text on Hamlet by teaching the conference participants how to learn from the title, the cast of characters, and the first scenes of Hamlet. He then put the play into its historical context and explained why it appeared when it did and the purpose the play serves. In his own class, he leads students through Hamlet scene-for-scene teaching both the structure and content of the play. Professor Ovid Tzeng, Psychology Department, UC Riverside, explained how he teaches students to learn and transfer what they learn from a psychology text to other texts in psychology and how to think like an experimental psychologist. Professor Dan Donlan, School of Education, UC Riverside, demonstrated a graphic method for teaching students to organize a history text hierarchically at the word, sentence, and paragraph level into superordinate and subordinate relationships. Professor Tom Bean, Education; Professor Charles Frazee, History; and Miss Hallie Yopp Graduate Assistant, all from CSU Fullerton, described an adjunct course on learning from text that accompanies Professor Frazee's course on Western Civilization. Professor Carlton Spring, Education, UC Davis, reported on several projects he directs on the

Davis Campus; one of them is on the effectiveness on achievement of questions accompanying a biology text; another is an education course on learning from text. Miss Caroline Turner who assists in the course also participated in the presentation.

All of the participants at the conference participated in seminars in which they presented strategies on learning from text. Project staff from three UC campuses (Professor Dan Donlan, Riverside; Mr. Owen Boyle, Berkeley; and Professor Spring, acting for Julius Sassenrath, Davis) and six CSU campuses (Professors Adria Klein, San Bernardino; Diane Lapp and James Flood, San Diego; Tom Bean, Fullerton; Marjorie Holden, Dominguez Hills; John Tibbetts and James Duggins, San Francisco; and Ruth Hartley, Sacramento) reported on the testing and collateral research projects on their campuses. Also attending the conference were Professor Joyce Johnson, English Department, Dominguez Hills, who is one of the campus content consultants to the project. Advisory Committee members for the project who attended were Dean Deborah Hancock, CSU Bakersfield and co-chair of the Advisory Committee; Miss Janis Cox, UC Systemwide (for Dr. Jane Stanbrough); Professor Joe Casanova, CSU Los Angeles, liaison to the Joint Projects Steering Committee; Dr. Betty Levinson, UCLA Director of Learning Assistance Center; and Professors Ovid Tzeng, Psychology; Tom Bean, Education; and Charles Frazee, History. Dr. Linda Jones, Associate Dean of Academic Projects for CSU and co-chair of the Joint Projects Steering Committee reported on changes in admission requirements to CSU; Janis Cox explained the new UC admission requirements. Graduate students Ms. Patricia Knop, assistant on the project, and Ms. Sheng-Ping Fang also attended.

Since the project may expand to other campuses next year, three representatives from these campuses were present: Professors John McNeil, UC Los Angeles; Jim Richmond, CSU Chico; Jack Jones, Cal Poly San Luis Obispo. Data collected by the project during the past year on learning from text will be analyzed during the summer; a full report will be ready this fall.

The project sends out two bulletins each month. One is a listing of abstracts on research on learning from text that appears in current journals; the other is a review of this research. These two bulletins, LFT Abstracts and LFT Reviews, are sent to any member of the UC and CSU systems. To get on the mailing list, write to the Project Director, Dr. Harry Singer, LFT Project, School of Education, UC Riverside, CA 92521.

Welcoming Remarks

Michael Hoffman is Assistant Vice Chancellor and Professor of English at UC Davis and Co-chair of the Joint Projects Steering Committee.

Welcoming Remarks

Michael J. Hoffman

UC Davis and Assistant Vice Chancellor

Co-Chair UC/CSUC Joint Projects Steering Committee

On behalf of the Joint Projects Steering Committee and my co-chair Linda Jones I am delighted to welcome you to what will hopefully be a rewarding interchange of ideas and information. It may be helpful to you to know that you are part of a larger effort sponsored with both enthusiasm and dollars by the administrations of the University of California and the California State Universities and Colleges. In addition to a series of conferences we have sponsored a number of action- oriented working committees in areas relating to student's basic skills and knowledge, including diagnostic testing in the areas of mathematics and science, reading and writing throughout the curriculum, and cooperative efforts on behalf of the disabled. We are now forming new groups for work in the humanities and for the development of new curricula in the precalculus levels of mathematics.

It is our hope that your group will make significant contributions on two major levels: 1) Give us solid information on the present levels of ability that students in various disciplines have in learning from text, through the use of various forms of diagnostic testing and survey; 2) Based on this informaton, help professors in both segments develop practical solutions, both curricular and pedagogical, to help students

learn more readily from text. Some solutions will already be in place and need only to be disseminated effectively. Others will need to be developed, or their development sponsored by the work group before their dissemination. In either case we look to you for effective action in an area that has so far been neglected.

The Joint Projects Committee and I are confident that you will be successful.

Background of the Study

Deborah Hancock is Dean of the School of Education at CSU Bakersfield and Co-chair of the Learning from Text Project. She chaired the committee that recommended the establishment of the Learning from Text Project.

Background of the Study

Deborah Hancock

California State College Bakersfield

The UC/CSU Joint Project on Learning from Text, as shown in Figure 1, can trace its beginning from 1976 when the University of California (UC) and the California State University (CSU) systems sponsored their first joint project, a conference on the entering freshman. That conference was followed by a second on the same theme in 1977.

Resulting from these conferences was the establishment of "workgroups" consisting of faculty from the UC and CSU systems, each of which was assigned a topic which conference participants had identified as needing further study. One of these workgroups, Reading/Writing Within the Disciplines, was established in 1977. It was chaired by Dr. Deborah Osen Hancock, then of CSU Fullerton, and included eight UC and CSU faculty members.

The two major projects of this workgroup were (1) Reading and Writing Within the Disciplines: A Preliminary Directory of Models, a publication based on the workgroup's national survey of existing methods for providing reading and writing instruction by faculty within the academic disciplines, and (2) Literacy in the Disciplines: A Conference Handbook, a publication which presents recommendations that emerged from a pilot conference conducted by the workgroups at UC Davis in which faculty from a variety of disciplines explored methods for increasing

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JOINT PROJECTS

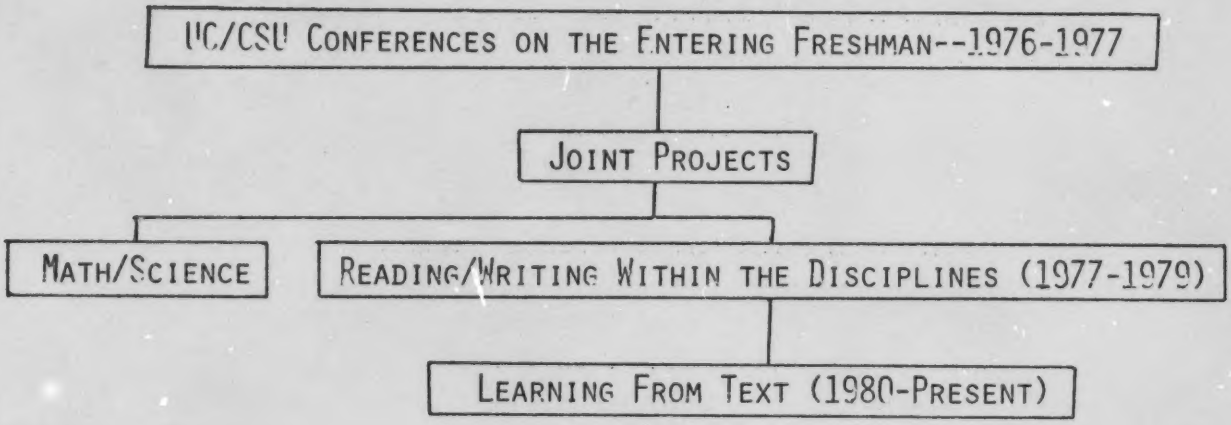

Figure 1. The Genesis of the Learning from Text Project

student reading and writing skills within the context of their disciplines.

When this workgroup concluded its study in 1979, it identified areas where further study was needed. An outgrowth of its recommendations was the establishement in 1980 of the Learning from Text Project as a new UC/CSU Joint Project.

Co-chaired by Dr. Harry Singer (UC Riverside) and Dean Deborah Osen Hancock (CSC Bakersfield), the project was charged with determining the relationship betwen reading and success on UC and CSU campuses. The project identified reading as something which is generally learned in the elementary grades, while learning from text is a task which is increasingly required of college students who must use their reading skills to go beyond lectures and other classroom activities to learn from text in their textbooks and other written course materials. The project studied how college students interact with written text in their course materials in order to construct meaning from that text.

The initial project committee included, in addition to the co-chairs, Dr. Tom Bean (CSU Fullerton), Dr. Diane Lapp (San Diego State University), Dr. Robert Ruddell (UC Berkeley), and Dr. Barbara Tomlinson (UC San Diego).

As depicted in Figures 2 and 3, in the first phase of the project, conducted during Fall 1980, the Sequential Test of Educational Progress (STEP) Form 1A Reading subtest was selected a a measure of students' ability to learn from text. The California Study Methods Survey (CSMS) was selected as a measure of students' motivation, metacognitive

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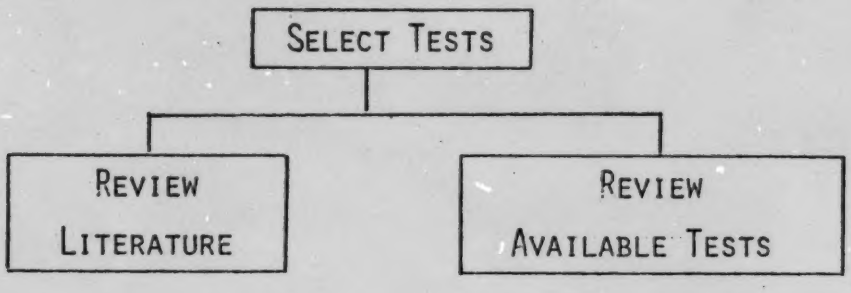
LEARNING FROM TEXT PROJECT

PLANNING PHASE (FALL, 1980)



RESULT:

1. SELECTED READING TEST - STEP II FORM 1A.
2. SELECTED A MEASURE OF STUDY ATTITUDE AND APPROACH - CALIFORNIA STUDY METHODS SURVEY.
3. SELECTED DEMOGRAPHIC ITEMS FOR SELF-REPORT INVENTORY.

Figure 2. The first phase of the Learning from Text Project

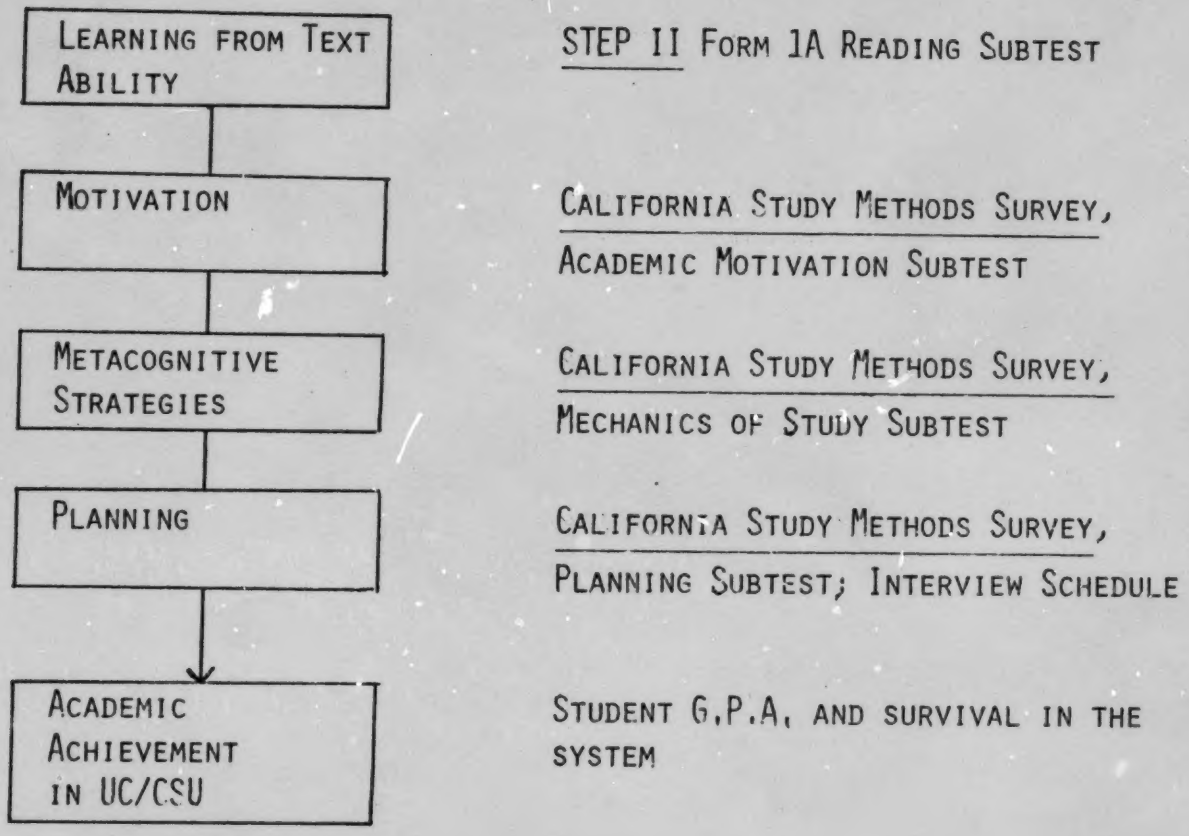
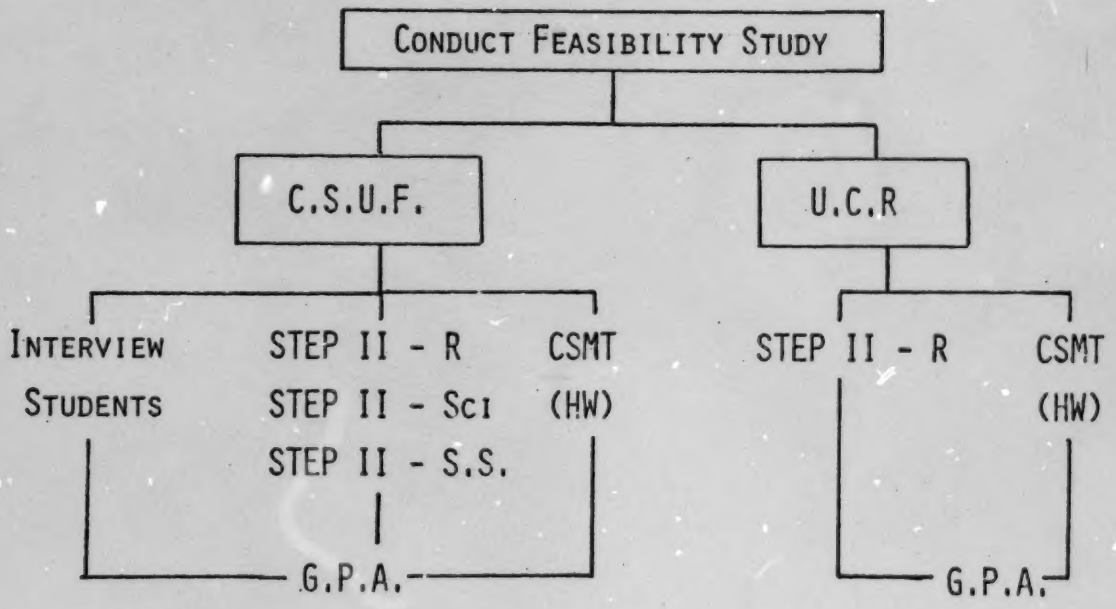

Learning from Text Ability
STEP II Form 1A Reading Subtest
Motivation
California Study Methods Survey, Academic Motivation Subtest
Metacognitive Strategies
California Study Methods Survey, Mechanics of Study Subtest
Planning
California Study Methods Survey, Planning Subtest; Interview Schedule
Academic Achievement in UC/CSU
Student G.P.A. and survival in the system

Figure 3. The learning from text testing model for prediction of grade point average

strategies and planning for textual study. An interview schedule was developed which enabled students to describe in more depth their strategies for learning from text.

At two campuses, UC Riverside and CSU Fullerton, a feasibility study was conducted in Spring 1981 comparing student performance on these tests with their academic achievement, as measured by their G.P.A. This preliminary study, as shown by the diagram in Figure 4, revealed that the multiple prediction of STEP and CSMS to G.P.A. was high (.44 at CSU Fullerton and .56 at UC Riverside) and supported the need for a larger scale study on additional campuses of both systems. A description of the second year of the study is shown in Figure 5.

FEASIBILITY STUDY (SPRING, 1981)



RESULTS:

1. RELATIONSHIP OF STEP-READING TO G.P.A. - MUCH HIGHER THAN S.A.T. (R = .43 AT CSUF; .36 AT UCR)
2. RELATIONSHIP OF CSMS TO G.P.A. - ATTITUDES, MECHANICS, AND PLANNING ALL SIGNIFICANT AT .01 LEVEL AT CSUF; AT UCR ATTITUDES AND PLANNING SIGNIFICANT AT .05 LEVEL.
3. MULTIPLE PREDICTION OF STEP + CSMS TO G.P.A.: R = .44 AT CSUF AND .56 AT UCR.

Figure 4. Testing model for feasibility study conducted at CSU Fullerton and UC Riverside

SECOND YEAR OF PROJECT (1981-82)

PHASE 1. GETTING TESTING AND RESEARCH PROJECTS STARTED:
U.C. - DAVIS; BERKELEY; RIVERSIDE
C.S.U. - DOMINGUEZ HILLS; FULLERTON; SACRAMENTO;
SAN FRANCISCO; SAN BERNARDINO; SAN DIEGO

PHASE 2. BEGINNING DISSEMINATION:
ABSTRACTS AND REVIEWS
INFORMAL DISSEMINATION ON PARTICIPATING CAMPUSES
CONFERENCE FOR ADVISORY COMMITTEE AND CAMPUS
COORDINATORS
NEWSLETTER
ANNUAL REPORT

PHASE 3. ANALYZING CURRENT YEAR'S DATA

Figure 5. Outline of the second year of the project

Learning from Text in a Classroom Situation

Harry Singer

University of California, Riverside

Harry Singer is Professor of Education and Director of the Learning from Text Project. He presented a model for learning from text, a definition, an explication of the factors in the model, and hypotheses for the project.

Learning from Text in a Classroom Situation

Harry Singer

University of California, Riverside

Learning from text in a classroom situation involves an interaction among four components: The learner, text, test, and teacher as depicted in the diagram shown in Figure 1 (Singer, 1982). The diagram shows that the learner progresses through the text to achieve the goals of instruction, which may be defined by a test. The instructor facilitates progress to the goal by interaction with the learner, the text, and the test. Both the instructor and learner receive feedback from the test. The entire interaction process is placed in an ecological setting, which affects all aspects of learning from text.

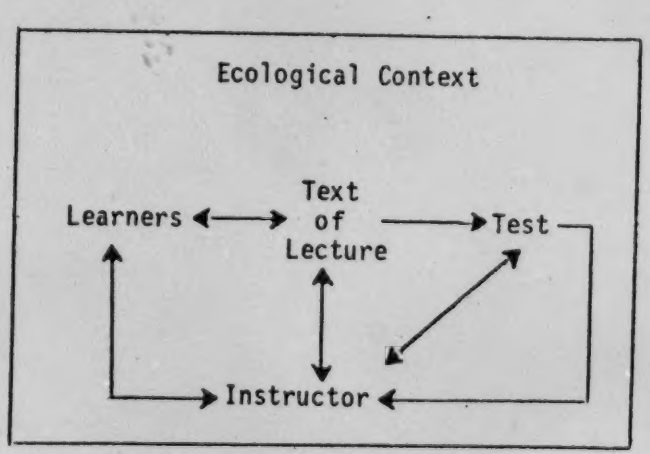


Figure 1. Diagram of Instruction and Learning from Text in an Ecological Context

Although learning from text in a classroom situation is a function of four components and their interactions, as depicted in Figure 1, I shall define each component separately. I shall start with a general definition of learning and show how this definition specifically applies to learning from text.

Definition of Learning from Text

Learning is generally defined as a process that results in a relatively permanent change in behavior as a consequence of reacting to an encountered situation, provided the change in behavior cannot be attributed to maturation, instinct, or temporary states of the organism (Hilgard and Bower, 1966). I can make this general definition of learning applicable to learning from text by substituting in the definition the phrase "meaning or knowledge" for "behavior." Note that "reacting to an encountered situation" can mean "interacting with text." Moreover, the way in which the learner interacts with text is by mobilizing resources, such as prior knowledge, reasoning processes, conceptual, lexical, syntactical, word recognition and other systems necessary for processing text. (See next section for more adequate listing of learner-based resources.) These systems can operate simultaneously with text and reciprocally with each other (Holmes, 1965; Rumelhart, 1976; Singer, 1982).

Resource mobilization is dependent not only on the demands of the text (stimulus tasks) but also on the purposes of the learner. For example, the learner may merely mobilize only those resources necessary for word indentification and for attainment of only a superficial reaction to the text. Or, the learner may mobilize resources necessary not only for constructing, but also for evaluating con-

structed knowledge. If the evaluation indicates knowledge is not consistent with the cumulative meaning of the text, then a feedback mechanism may operate to return the learner to the beginning of the sentence. Feedforward mechanisms, such as the effects of global context, also operate to lead the learner to constrain the meaning to be constructed.

Whatever, the result of the learner's interaction with the text, it is covert. The learner may store this covert knowledge in long-term memory and then make it overt by encoding it into oral or written responses.

If the purpose of the learner is to achieve the goal of constructing meaning for the text or new knowledge, then the learner may receive some feedback, either internally or externally, that the goal has been achieved. Internal feedback, such as perception or insight that a constructed meaning is consistent with prior and subsequent constructions of meaning, occurs during the process of interacting with the text. External confirmation or reinforcement that the learner has achieved the goal of a valid construction of meaning for a text may come as a result of a test, a grade in a course, direct feedback from the instructor to the learner perhaps during a discussion of the text, or contiguity between perception of a stimulus in the text and a response by the learner, such as text data which results in an inference, interpretation, or evaluation. Through such internal or external insight, confirmation, reinforcement or contiguity, the learner knows whether or not the goal has been

achieved. In this process, the learner, according to his or her purposes and the demands of the text, may also learn to mobilize necessary and appropriate resources.

The resources that learners can mobilize for interacting with text consist of general knowledge, semantics, conceptual abilities, reasoning processes, syntactic abilities, vocabulary and graphophonological rules. For example, to comprehend the sentence, "The cigarette caused the forest fire," readers use graphophonological, syntactic, and semantic abilities to identify the words in the text, construct meanings for them by drawing upon semantic and conceptual information stored in long-term memory, and employ reasoning processes to infer meanings that fit the sentence constraints. Readers may also generate a scenario to explain the sequence of events in the causal connection between the cigarette and the forest fire and may draw upon prior knowledge for criteria to evaluate the situation. Thus, readers construct literal meanings, make inferences and interpretations, draw conclusions and evaluate information as they process texts (Singer and Donlan, 1980).

Having made these substitutions in the general definition of learning, we can now define learning from text:

> Learning from text is a process in which learners, according to their changing purposes and demands of the task, mobilize their resources to interact with the text in order to construct meaning for the text or new knowledge which they can evaluate and then store in long-term memory or encode into oral or written responses.

Developmental Phases in Learning from Text

As students progress through school, they go through two overlapping phases in developing their ability to learn from text. The first phase, learning how to read, requires acquisition of (a) word identification processes, (b) use of language and cognitive abilities in response to text, and (c) integration of (a) and (b). The first phase is finite, that is, a student has to learn only a given number of rules for word identification processes and for employing and integrating language and cognitive processes with these rules while responding to text. Although the rate of acquisition varies, most students can learn how to read after three to six years of instruction.

However, the second phase, learning from text, continues to be developed throughout a person's lifetime. At the high school level, students acquire reader-based resources for learning from text in the content areas. They learn to identify technical terms, gain information, develop processes of thinking, and acquire knowledge of the symbols, devices, operations, allusions, and patterns of writing characteristic of the content areas.

Students must learn how to learn from text at each school level. At the elementary levels, they learn how to read and begin to learn how to learn from text. At the high school level, they learn how to learn from text in various academic areas, such as science, mathematics, literature, social sciences, etc. At the college and university levels, students go on to learn more of the technical terms, knowledge frameworks, and theories that are explicit or

implicit in their texts. For example, they learn Keynesian theory in Samuelson's well-known text on economics. Later, they may learn other theories of economics. They also may become more adept at perceiving the structural organization of text and may acquire more effective strategies for learning from text.

The instructor's task is to develop students' knowledge resources and modes of discovering and critically evaluating knowledge in the various disciplines. If they also teach students strategies for mobilizing student-based resources and for deriving data from text, they are likely to enhance students' ability to interact with text. Thus, teaching students to learn from text involves an improvement in the interaction between reader-based resources and text-based information.

We have stated a definition for learning from text and given an overview of a classroom model for learning from text; we shall now explain in greater detail each component in our model. We shall start with the resources of the learner, next go on to text-based information; then to types of tests; and finally to instructional strategies.

Resources of the Learner

The resources of the learner, as shown in Figure 2, consists of cognitive capacities and processes; knowledge structures, including ideational frameworks, events, and semantic maps; syntactic structures; orthographic knowledge; phonological rules, all overgirded by metacognitive processes that are directed by motivational and affective factors and undergirded by physical and physiological

support systems. These resources may be mobilized for interacting with a text.

Metacognition: Direction and Control Factors
- Motivation
- Affective Forces

Knowledge Structures
- Semantic Maps
- Events or Propositions
- Ideational Frameworks

Syntactic Structures
- Sentences
- Paragraphs
- Larger Units of Discourse

Orthographic Knowledge

Phonological Rules

Supporting Factors
- Physical
- Physiological

Figure 2 Reader-Based Resources

Text

A text consists of any segment of print or speech that forms a unified whole. It can be divided into two parts: text structure and text content (McConkie, 1978), as shown in Figure 3. The structure or organization of a textbook type of text can be viewed from the largest to the smallest unit of the

Text-Based Data

Structure

Organization[1]
- Chapters
- Sections
- Paragraphs
- Sentences
- Words
- Spelling

Staging[3]
- Placement in hierarchical structure of passage
- Order of first mention
- Topic/Comment sentence str.
- Embedding

Aids to Semantic or Conceptual Structure
- titles, table of contents, headings, topic sentences, conclusions, summaries, tables, graphs, maps, diagrams, charts, abstracts, index, appendix

Continuum of Text Types
- Literary-Narrative: Plot: Problem/Quest/Resolution
- Rhetorical
  - Problem-Solution
  - Assertion-Proof
  - Question-Answer
  - Cause-Effect
  - Argumentative
  - Chronological
  - Definitional
- Expository
  - Inductive
  - Deductive
  - Topics

Cohesion: where interpretation of any item in discourse requires making reference to some other item in the discourse[1,2,3]
- Sentence Links
  - Additive: and, or
  - Temporal: then, next, previously
  - Adversitive: yet, though, but
  - Causal: so, in consequence, for this purpose, otherwise
- Lexical Ties
  - Grammatical: Ellipsis, Collocation
  - Lexical: Repetition, substitution

Content

Functions of Text Constituents
- Chapters and Paragraphs: New Topics, Arguments, Scenes.
- Sentences: Describe, Explain, Question, Give Order, Promise.
- Phrases:
  - Propositions: Clauses: Independent Noun and Verb Phrases
  - Noun Phrases: Objects or People
  - Verb Phrases: Kinds of Events, Actions, Relations, States
  - Adverbial: Time, Place, Causes, Purposes, Manner
- Morphemes
  - Grammatical or Bound, e.g. Plural Ending
  - Lexical or Unbound. Semantic Maps
- Spelling
  - Graphemes: Distinctive Writing Units
  - Rules for Sequence of Graphemes
- Sounds
  - Phonemes: Distinctive Sounds
    - Sequential: Consonants and Vowels
    - Suprasegmental: Intonation (Pitch, Stress, Juncture, Contour)
- Non-Verbal Cues
  - Facial Expressions
  - Rate of Speech
  - Body Position and Manner

Semantic or Conceptual Structure[4]
- Macrostructure: key ideas and their relationships.
- Microstructure: specific supporting propositions

Types of Information[5]
- Events: participants, episodes
- Non-Events
  - Setting: Time, Place, Context
  - Background: Causes, Reasons for Events, Interpretation of what is in text

Test-Based Data (cont.)

Structure	Content
	Types of Information[5] (cont.) Collateral Information: e.g. what did not happen, or what might happen later, a range of possibilities Evaluative: Comments on Morality, Relevance, Importance, Effectiveness Performatives: Uttering is also doing, e.g. I hereby pronounce you man and wife.

Figure 3. Text-Based Data Divided into Two Major Classes: Structure and Content

[1]Maclean (1979)
[2]Halliday and Hasan (1976)
[3]Grimes (1975)
[4]van Dijk (1977)
[5]Grimes (1971)

text, from chapters to graphemes. Aids to the semantic or conceptual structure of a textbook type of text consist of text and chapter titles, table of contents, headings, topic sentences, conclusions, summaries, visual aids, index, and appendix. A text can also be organized according to the way its content has been "staged," that is hierarchically structured as shown by an outline of its contents (Grimes, 1975; McConkie, 1978). Types of text vary on a continuum from literary-narrative to rhetorical and expository (Maclean, 1979). Cohesion among the parts

of a text is achieved through sentence links and lexical ties (Halliday and Hasan, 1976; Grimes, 1975).

The content of a text consists of its macrostructure, the key ideas in a text and their interrelationships. Supporting the macrostructure are specific propositions (van Dijk, 1977; van Dijk & Kintsch, 1977). Another way of perceiving text is through its types of information, which may be categorized into events that include participants and episodes, and non-events that consist of setting (time, place, context), background (causes or reasons and interpretations for events), collateral information (what did not happen or a range of possibilities that could have happened), evaluations (comments on morality, relevance, importance, or effectiveness of events), and performatives (where the utterance is also the doing of the event, such as the minister saying, "I hereby pronounce you man and wife") (Grimes, 1971).

The functions of text parallel its structure. Chapters and paragraphs imply new topics, arguments, and scenes. Sentences may describe, explain, question, order, or promise. Each sentence consists of a proposition which contains a noun and a verb phrase. Noun phrases refer to objects or people. Verb phrases refer to kinds of events, actions, relations, or status. Adverbial phrases relate time, place, cause, purpose, or manner of action. Adjectives are either attributes or predicates; they can also be stated as propositions that have been embedded in sentences. Phrases consist of lexical elements which subdivide into bound and unbound morphemes. Each lexical ele-

ment is made up of spelling patterns, consisting of graphemes that are sequenced according to orthographic rules. When ideas are expressed through speech, the distinctive sounds uttered consist of segmental phonemes (consonants and vowels) and suprasegmental phonemes or intonations (pitch, stress, juncture, and sentence contour).

The structure and function of text may interact with the resources of the reader and the resultant information may be stored in long-term memory. But whether assessment of comprehension leads the reader to retrieve information from long-term memory and reproduce or reconstruct the information is a function, in part, of the validity of the device used for testing comprehension (Singer, 1981).

Tests

Tests or goals can be classified into assessment of knowledge of who, what, where, when, how, and why. The knowledge of why includes contextual and causal factors for explanation, and cognitive and affective criteria for evaluation.

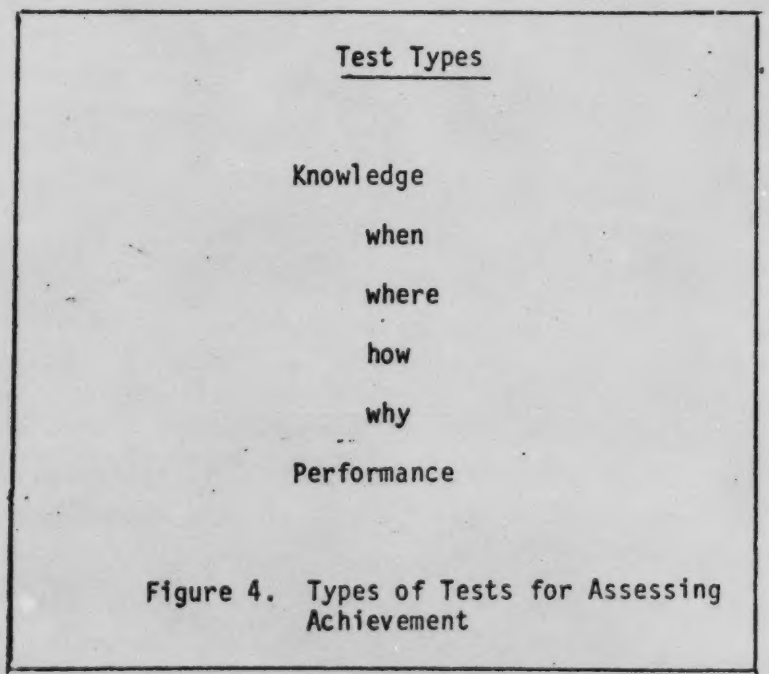


Figure 4. Types of Tests for Assessing Achievement

The skill and the art in assessment is for the instructor to construct means for determining achievement that are consistent with the stated purposes of instruction, the content of the text, and the activities and experiences provided by the instructor in the course of instruction.

Role of the Instructor

The role of the instructor is to communicate knowledge, select and devise appropriate materials and experiences for learning, construct assessment activities, evaluate learning, provide for knowledge of results, guide the learner, facilitate learning from text, and promote progress towards the goals of instruction. In teaching the student to learn from text, the instructor may enhance metacognitive or study strategies, such as teach the learner how to organize a text, generate questions for searching the text for answers and for self-assessment, construct summaries for economy in storage of information, and arrange information into hierarchical structures. The instructor may provide necessary background and contextual knowledge through lectures and collateral reading assignments, motivate and develop favorable affective responses in the learner through classroom and counseling sessions; teach the learner to identify textual components through direct instruction; provide lectures that augment, clarify, and evaluate information in the text; put the text into a contextual perspective; or communicate heuristic procedures and evaluative criteria. Thus, the role of the instructor is to achieve coherence

among all the instructional components. In doing so, the instructor can draw upon a variety of instructional strategies.

Instructional Strategies

In teaching students to learn from text, the instructor's general strategy is to help students learn ways of determining and comprehending the macrostructure of a text and its supporting microstructure as shown in Figure 5. A means to this goal is to teach

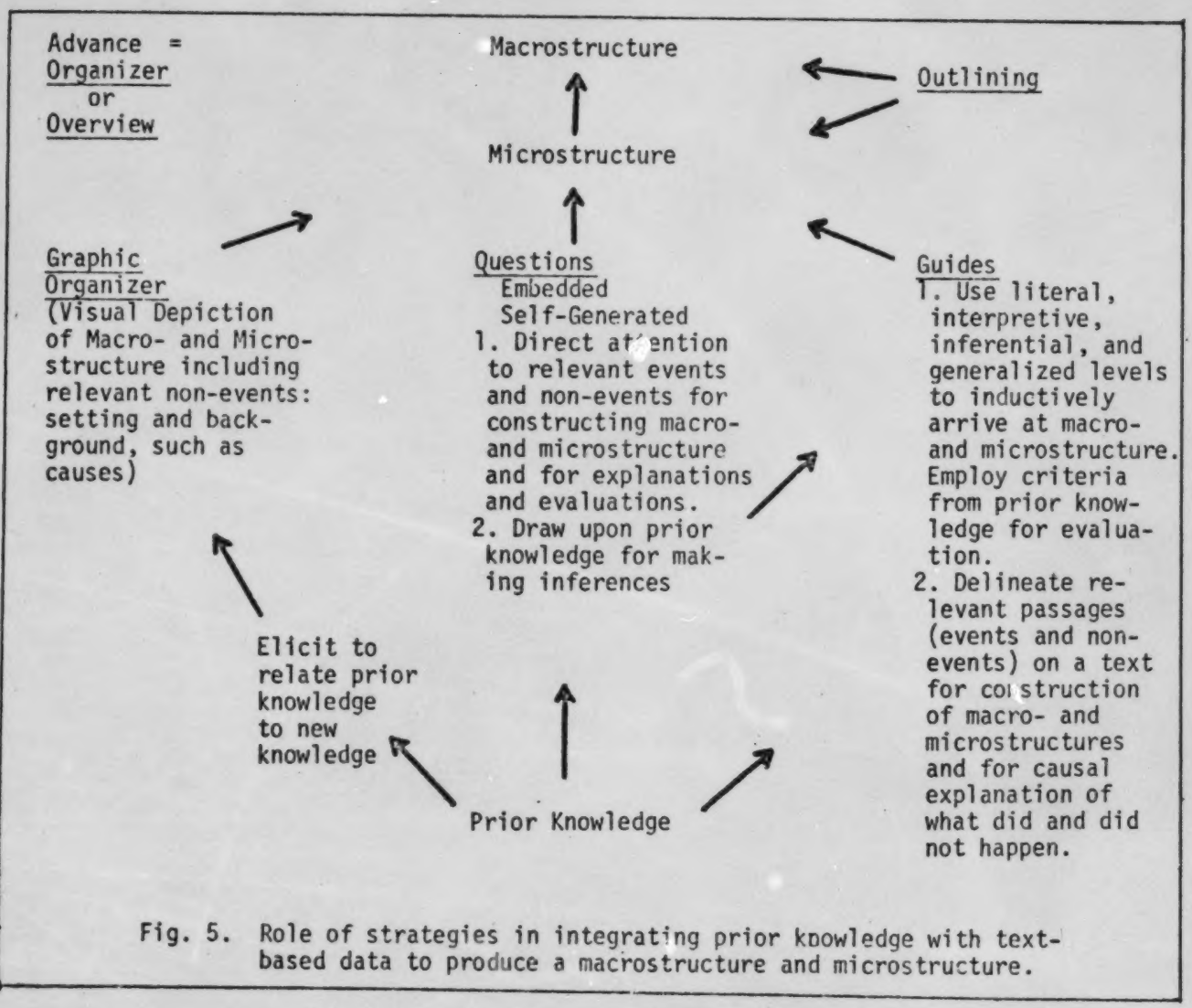

Advance = Organizer or Overview
Macrostructure
Outlining
Microstructure
Graphic Organizer (Visual Depiction of Macro- and Microstructure including relevant non-events: setting and background, such as causes)
Questions
Embedded
Self-Generated
1. Direct attention to relevant events and non-events for constructing macro- and microstructure and for explanations and evaluations.
2. Draw upon prior knowledge for making inferences
Guides
1. Use literal, interpretive, inferential, and generalized levels to inductively arrive at macro- and microstructure. Employ criteria from prior knowledge for evaluation.
2. Delineate relevant passages (events and non-events) on a text for construction of macro- and microstructures and for causal explanation of what did and did not happen.
Elicit to relate prior knowledge to new knowledge
Prior Knowledge

Fig. 5. Role of strategies in integrating prior knowledge with text-based data to produce a macrostructure and microstructure.

students to recognize the text type, its function, and the kinds of information contained in the text. Instructors can then use imbedded questions to focus attention on these aspects of text. They can also use a variety of adjunct aids to teach students to discern the structure and content of texts. Among them are presenting the macrostructure of a text in the form of an advance organizer such as a summary or abstract of the text, or depicting its hierarchical structure through a graphic organizer (Barron, 1969; Frayer, Frederick & Klausmeier, 1969; Thelen, 1982). Students may be taught to form a macrostructure for a text through the use of these summarization rules: formation of a generalization (use a superordinate to replace subordinate concepts), deletion (eliminate propositions irrelevant to the discourse as a whole), integration or selection (integrate one proposition with another if it can be subsumed by the more inclusive proposition), construction (create a general proposition to subsume stated propositions) (van Dijk & Kintsch, 1977). They may then devise their own graphic organizers to depict the macrostructure of the text.

Students may also organize macrostructures inductively by using reading guides (Herber, 1978) that progress from literal to interpretive, inferential, and on to generalized levels. They also may use process guides for guidance through the steps of a procedure, such as an hierarchically structured elimination process for identifying unknowns in qualitative chemistry (Singer & Donlan, 1980).

Another way of teaching students to understand a text's macrostructure is through a questioning procedure, which may start as teacher- directed questions, given either verbally or inserted in texts (Rothkopf, 1982), and end as self-directed question-generation

(Singer & Donlan, 1982). Questioning strategies can apply to either narrative or expository prose (Kintsch, 1982).

Students can aid their understanding of text not only by analyzing it into its propositions and their relationships but also by subdividing propositions into their constituent parts: noun, verb, and adverbial phrase. The elements of propositions can also be divided into lexical items. Semantic maps can be constructed for the items. A semantic map consists of a lexical item with its properties, superordinates, coordinates, and subordinate concepts (Pearson and Johnson, 1978). Regardless of the strategy used, instructors should phase it in. The instructor can do so by using a strategy initially as a class procedure, then as a group process, and finally for individual assignments. Through practice, students should eventually internalize the strategy and subsequently phase out the mechanical use of it (Singer & Donlan, 1980).

Other strategies for learning from text such as outlining or underlining are also attempts to delineate the macrostructure of a text. Graphic organizers or marginal notes may elicit prior knowledge that students need for making inferences, interpretations, or evaluations of the text.

Instructional strategies tend to enhance comprehension and recall of information because they lead individuals to overcome difficulties in constructing the macrostructure of a text. As a result, individuals process the relevant parts of the macrostructure of the

text more adequately. The consequence is that these parts of the text are more likely to be encoded and stored in long-term memory (Kolers, 1982).

All of the strategies operate in an ecological context. Therefore, to understand the conditions for learning from text, it is necessary to understand the ecological context and its effects on learning from text.

Ecological Context

The ecological context refers to the fact that learning takes place in a social and physical environment to which faculty and students adapt. This environment may facilitate or impede learning from text and attainment of goals. Included in the ecological context are historical and environmental factors, such as high school preparation, economic support, and family interactions that affect students prior to and during school. It also includes school factors, such as the organization of educational programs, atmosphere within a school, and the fit between students' talents or aptitudes and the demands of the program. In a broad sense, achievement is a function of a dynamic adaptation among all the components depicted in Figure 1: the learner, text, test, and instructor in a school and community environment. This broad view of learning from text provides the necessary background for understanding the rationale for the research and demonstration projects being conducted by the Learning from Text Project (see next page and pp. 97-98).

The Learning from Text Project

The charges that were given to the Learning from Text Project are:

(1) Determine the relationship between students' ability to learn from text and their "success" in both the University of California and the California State University systems.

(2) Discover ways of improving students' ability to learn from text and hence improve their success in both systems.

(3) Adduce evidence on the relationship between learning from text and achievement on which policy decisions can be based.

Stated in other words, the charge to the Project is to conduct research on ways in which students learn from text and on ways to improve their ability to learn from text. In short, the Project is to conduct research. It is not charged with providing direct services to students. Both systems already have learning assistance centers on each campus for that purpose. What the projects can do for the centers, as well as for both systems, is to establish a data and knowledge base that they can draw upon for teaching students.

The Project also has a commitment to disseminate information on learning from text. The Project is already accomplishing this part of its mission in three ways:

(1) Research-demonstration projects are being conducted in conjunction with regular classes on various campuses.

(2) Reports on the Project have been given at various professional meetings, such as the California Reading Association, the Western College Reading Association, the National Reading Conference, and the Lake Arrowhead Conference on Learning from Text. Articles describing the Project have appeared in the University Bulletin and in The California Reader. As research projects are completed, they will be reported in various professional journals.

(3) Each month the Project publishes and distributes Learning from Text Abstracts. The abstracts are culled from various research journals. The Project also publishes a Learning from Text Review of research. The review is written by a staff member of the Project.

(4) Conferences conducted by the Project. The first conference brought together all the members of the Project for two days of reports and presentations on learning from text. The Project envisions future conferences for various subject areas, such as learning from text in mathematics, on history, or science, etc.

Sometime during 1982-1983 the Project will begin to furnish campuses with information under the first charge. The Project is currently accumulating this information through two types of research: (1) macrostudies: multiple prediction statistical studies for three UC campuses and six CSU campuses and (2) microstudies: research demonstration projects conducted in classroom settings.

A macrostudy, visually depicted as a multiple regression equation in Figure 6, is based upon three factors: ability to learn from

text, study methods, and ecological variables. Ability to learn from text is measured by the Educational Test Service's Sequential Test of Education Progress: Reading (Step Reading Test, Form 1A).

Ecological Context[1]

Learning from Text (STEP Test)[2] + Motivation (Carter Attitudes) + Metacognitive Strategies (Carter Mechanics) +

Planning (Carter Planning) + Course Specificities[3] = Achievement (GPA or Survival)

Figure 6. Multiple Regression Equation for Relationship Between Learning from Text and Success in UC and CSU Systems

[1] Information on Ecological Context is gathered by the Biographical Inventory

[2] Assessment measures are shown in parentheses for each factor.

[3] Course specificities are assessed in microstudies which focus on such courses as English, mathematics, psychology, history, biology, etc. See subsequent sections in this volume.

Study methods are assessed by the California Study Methods Survey (California Test Bureau/McGraw Hill) which consists of three factors: attitudes and morale, mechanics of study, and planning. The ecological component consists of such variables as kind and quality of academic preparation, financial support, and time available for learning. We are collecting information in the ecological context through a biographical inventory that students themselves complete. Although the criterion for success in UC and CSU can be defined in many ways, we have defined criteria for success as cumulative grade point average and progress towards earning a degree (survival). The macrostudy is a global approach to satisfying the first charge to our project.

The second way we are attempting to gain an answer to our charge is through microstudies. Some are research-demonstration projects carried out in a regularly scheduled course to test a particular hypothesis. For example, the Riverside campus is testing the hypothesis that improvement of students' ability to organize textual information into an hierarchical structure will improve their learning and retention in a history course. The Fullerton campus has made arrangements with a high school instructor and a history professor to test the hypothesis that better articulation between instruction in history at these two academic levels will enhance students' cumulative achievement. The Berkeley campus is determining whether a mapping technique will enhance students' ability to comprehend text and express their comprehension in writing. Dominguez Hills has collected survey data to determine what professors on that campus already know and are doing in teaching students to learn from text. Other microstudies consist of statistical analyses of the test data being collected on individual campuses.

Both of these types of studies, the macrostudy and the microstudies, add to our knowledge on learning from text and both of them indicate in more specific ways the relationships between learning from text and success in particular classes in the UC and CSU systems. Furthermore, the microstudies illuminate the macrostudy and provide us with insight into the interrelationships among students, texts, tests, and instructors in specific settings. The intervention studies which involve instruction on strategies for learning from text also give us some knowledge on what could be the relationship between learning from text and successful achievement in particular classes under different types of instruction.

Three general hypotheses that we are testing in both the macrostudy and microstudies are (1) a multiple set of factors in learning from text predict achievement in both the UC and CSU systems; conversely failure to achieve is a function of reduction in one or more of these factors, (2) the greater the coherence among the factors within students' ecological systems, the greater will be the progress of students towards success, and (3) the more that students learn how to learn from text, the greater will be their achievement in the UC and CSU systems.[1] More specific formulations of these general hypotheses are being tested in the microstudies on each campus.

Summary and Conclusion

The Learning from Text Project is based upon these assumptions: Instruction in learning from text involves four major components and their interrelationships in an ecological setting. Successful achievement in both the UC and CSU systems is a function of these four factors and their degree of coherence. The interrelationships among these factors and successful achievement on both systems are enhanced by an instructor who strives for coherence and uses strategies for teaching students to learn from text.

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[1]We also intend to experiment with the factors in our model. For example, we intend to vary texts to determine how the variation affects student achievement. Specifically, will a text that we believe is improved yield better comprehension than the original text? Similarly we intend to experiment with test questions, instructional strategies, learner variables, and ecological factors in relationship to achievement.

References

Barron, R. F. The use of vcocabulary as an advance organizer In H. Herber and P. Sanders (Eds.), Research in Reading in the Content Areas. Syracuse, New York: Syracuse University Press, 1969.

Frayer, D., Frederick, N. G., & Klausmeier, H. A schema for testing the level of cognitive mastery. Working paper No. H, Wisconsin Research and Development Center for Cognitive Learning, 1969.

Grimes, J. Kinds of information in discourse. Kivung, 1971, 4, 64-74.

Grimes, J. The Thread of Discourse. The Hague, Netherlands: Mouton, 1975.

Halliday, M. A. K., & Hasan, R. Cohesion in English. London: Longmans, 1976.

Herber, H. Teaching Reading in Content Areas. Englewood Cliffs, N. J.: Prentice-Hall, 1978.

Hilgard, E. R., & Bower, G. H. Theories of Learning. New York: Appleton-Century-Crofts, 1966.

Holmes, J. Basic assumptions underlying the substrata-factor theory of reading. Reading Research Quarterly, 1965, 1(1), 5-28.

Kintsch, W. Text representations. In W. Otto and S. White (Eds.), Reading Expository Materials. New York: Addison-Wesley, 1982 (In press).

Kolers, P. Colloquium presented at Pomona College, Claremont, California in Professor E. Bank's class, 1982.

McKonkie, G. W. Learning from text. Review of Research in Education, 1978, 5, 3-47.

Maclean, R. Reading Written Language. Geelong, Australia: Deakin University Press, 1979.

Pearson, D., & Johnson, D. Teaching Reading Comprehension. New York: Holt, Rinehart, and Winston, 1978.

Rothkopf, E. Adjunct aids and the control of mathamagenic activities during purposeful reading. In W. Otto and S. White (Eds.), Reading Expository Texts. New York: Academic Press, 1982 (In press).

Rumelhart, D. Toward an interactive model of reading. Technical Report No. 56. San Diego: Center for Human Information Processing, University of California, 1956.

Singer, H. Hypotheses on reading comprehension in search of classroom validation. In M. Kamil (Ed.), Thirtieth Yearbook of the National Reading Conference. Washington, D.C.: The National Reading Conference, 1981.

Singer, H. Towards a theory of learning from text: Discussion of Ernst Rothkopf's Adjunct aids and the control of mathamagenic activities during purposeful reading. In W. Otto and S. White (Eds.), Reading Expository Texts. New York: Addison-Wesley, 1982 (In press).

Singer, H. The substrata-factor theory of reading: Its history and conceptual relationship to interaction theory. In L. Gentile, M. Kamil, and J. Blanchard (Eds.), Reading Research Revisited. Columbus, Ohio: Merrill, in press (about 1982).

Singer, H., & Donlan, D. Reading and Learning from Text. Boston: Little, Brown, 1980.

Singer, H., & Donlan, D. Active comprehension: Problem-solving schema with question generation for comprehension of complex short stories. Reading Research Quarterly, 1982, 17(2), 166-186.

Thelen, J. L. Preparing students for content reading assignments. Journal of Reading, 1982, 25 544-549.

van Dijk, T. Semantic macrostructures and knowledge frames in discourse comprehension: In Just P. Carpenter (Ed.), Cognitive Processes in Comprehension. Hillsdale, N.J.: Erlbaum, 1977.

van Dijk, T., & Kintsch, W. Cognitive psychology and discourse: Recalling and summarizing stories. In W. A. Dressler (Ed.), Current Trends in Textlinguistics. New York: de Gruyter, 1977.

CSU Fullerton

Project Report

The CSU Fullerton Project is a separately funded project. It is essentially an adjunct course for a history class taught by Professor Charles Frazee. He provided a perspective on the course. Then he joined Tom Bean, director of the project, and Hallie Yopp, instructor for the adjunct course, in a formal report of the project.

Report to the Arrowhead Conference

Charles Frazee

University of California, Davis

In 1978 California State University, Fullerton inaugurated a new General Education policy. Students entering that year were required, as part of their course work, to take a two semester Western Civilization course which would survey the European past from the ancient world to the present.

A text-book committee was formed in the history department to make a recommendation after it had been agreed that all instructors of this course would use the same one. After many weeks of work reviewing the available volumes a selection was made to use the volume published by Macmillan. However, this book was found to have many problems. Students found it much too complex. So, after one year's use, the textbook committee (with different personnel) went back to work. This time the selection was McKay, Hill, and Buckler, A History of Western Society. This book has been used the past two years.

A History of Western Society has proven to be a readable comprehensive text. Its positive features include emphases on social and economic issues which are not usually covered in other volumes. On the other hand its nearly 1000 pages of text very often proved overwhelming to the student. Students complained that they could not tell what was important, and what was not, by reading their text. As a result, members of the reading department and I drew up a guide for those students taking a

one-hour, ten week course to learn from the text. This has now been in operation for the past two years. As their history instructor I do not know which students are in the course so that my grading pattern will not be influenced in any way as far as my test results are concerned.

Overview of the CSUF Learning from Text Project

Thomas W. Bean, Charles Frazee, and Hallie K. Yopp
California State University, Fullerton

This paper summarizes an interdisciplinary project on learning from text at California State University, Fullerton. For full details see Bean (1981).

Project Background

A recent literacy conference involving University of California and California State University faculty representing diverse academic disciplines resulted in the identification of numerous teaching and learning concerns (Hancock and Moss, 1979). Among the issues considered crucial, faculty felt that college students ought to develop the ability to acquire information from text material independently and to interpret text content critically. Although faculty agreed that they should play an integral role in guiding students' text processing, they also pinpointed specific factors that limited their ability to do so within their own classes. At the top of their list, faculty pointed to a lack of released time for faculty development in procedures aimed at integrating text processing strategies and content objectives. In addition, they noted a lack of time for cross-discipline communication and felt that such cross-fertilization of ideas might improve the teaching and learning process.

The present project was designed to address the faculty and student development needs identified by the UC/CSUC workshop on Literacy in the Disciplines (Hancock and Moss, 1979) using a carefully planned, systematic approach. This article describes the purpose, planning and implementation phases, and results of the first year project at California State University, Fullerton.

Project Purpose

The Chancellor's Office of the California State University and Colleges (CSUC) agreed to fund a year long pilot project for the 1980-81 academic year. Supported by the CSUC Fund for Innovation and Improvement in Education, the project centers on the improvement of two major aspects of teaching and learning from academic texts by:

1. Developing professors' available repertoire of strategies for guiding students' independent learning from texts.
2. Developing students' facility in learning from texts with adjunct guide material in a mini-course setting.

Faculty and students in the two academic disciplines of history and philosophy were selected for participation in the project, although only the history phase will be discussed in this paper. Both areas have required entry level courses that demand intensive critical reading.

Planning Phase

The objective during the planning phase were to: 1) analyze the text in terms of structure and readability, 2) develop appropriate guide materials, and 3) establish the adjunct course outline and format.

Text Structure and Readability

Before developing study guides to assist students in the understanding of conceptual material the basic text must be analyzed in terms of its rhetorical structure and readability. A text's structure, or organizational pattern, may inhibit or facilitate students' ability to synthesize and evaluate information (Meyer, 1979). Likewise, the readability level of a text may influence the readers' comprehension. Since this introductory history course requires intensive and extensive reading, students' learning depends on their ability to deal with the text. An understanding of the text itself is crucial.

In analyzing A History of Western Society (McKay, Hill, and Buckler, 1979), it was noted that the attribution structure tends to dominate. Long passages relate an array of details or attributes to specific events and/or ideas. Descriptions of daily life in various ages and societies, of religions and their growth and influence, of the many influences of geography upon political development, and so forth, abound in this text. A Raygor (1977) readability estimate indicates that this text is written at the college level.

This history text presents a more comprehensive treatment of subject matter at a more difficult readability level than beginning college students are accustomed to in high school. The sheer volume of information, the "mass of material" (p. x, McKay et al., 1979) as the authors call it, can be frustrating to read and difficult to retain. The demands of this text on readers make it an ideal selection for involvement in the project.

Development of Adjunct Guide Materials

Adjunct guides are designed to: 1) guide a student through reading assignments in content area textbooks and 2) to focus a reader's attention on the major ideas presented in a textbook. Adjunct guides attempt to develop students' understanding of and ability to deal with levels of comprehension, the organizational patterns of different texts, and the specific skills these might require. Adjunct guides structure and guide the reading of the textbook material or students' post-reading reasoning (Herber, 1978; Readence, Bean, and Baldwin, 1981; Singer and Donlan, 1980).

The first step in the development of study guides is the selection of content to be emphasized. The history professor "highlighted" all major concepts in the text for the reading instructors. He selected the information that he considered most pertinent and wished to emphasize and marked the passages in the text. All study guides reflected concepts in these marked sections.

A variety of adjunct guide materials were constructed. These included selective reading guides, graphic organizers, concept outlines, vocabulary identification, and vocabulary relationships or analysis guides. The purpose, construction procedure, and an example of each of these guides are outlined in Table 1.

Development of Adjunct Mini-Courses

Two 10 week critical reading mini-courses were designed to accompany the core 100 level course in history during the first 10 weeks

Table 1

Learning From Text Adjunct Guides

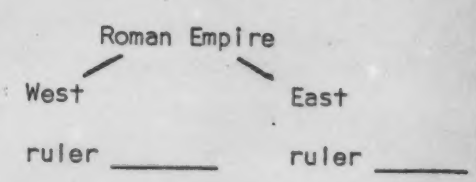
Guide	Purpose	Procedure	Example
Selective Reading Guide	1) to guide students to major ideas 2) to teach flexibility in reading	1) identify important concepts 2) proceed section by section indicating in written form each section's importance 3) include specific concepts to which the students should attend	Page 334 Read this section quickly. Note primarily the appearance of Joan of Arc.
Graphic Organizer	1) to help students develop a sense of the structure of the concepts being studied 2) to aid students in perceiving the relationships which exist between concepts	1) determine which concepts should be emphasized and what relationships exist between them 2) arrange the words in a diagram 3) omit several terms	
Concept Outline	1) to aid students in perceiving the relationships between concepts 2) to summarize events 3) to capsulize information	1) identify which concepts should be emphasized and outlined 2) provide skeletal outline of an important event	Piedeian Struggle I. Reasons: II. Steps 1. secession from the state:

Table 1 (Continued)

Guide	Purpose	Procedure	Example
Vocabulary Identification	1) assist students in selecting important terms, dates, events, and to locate them in context for greater reinforcement	1) select important terms from the text 2) indicate page, column, and paragraph in which the term can be found	Hellas (41,1,1) _____ polis (42,2,2) _____ Mycenaean (45,2,1) _____
Vocabulary Relationships/ Analysis	1) help students see relationships among ideas presented 2) to begin to analyze terms when appropriate when based on common roots, etc.	1) select important terms 2) have students match, put in chronological order, compare and contrast, etc.	What were the popular definitions for "liberty" and "equality" during this period? Were they synonymous?

of the Spring, 1981 semester. This feature of the project was intended to provide small group discussion of text concepts using the guide materials. Discussion of guide concepts is essential to their success as aids to critical reading (Anderson, 1981; Herber, 1978; Readence et al., 1981). The initial ten weeks of a 16 week semester was intended to provide enough guidance so that students could eventually apply the strategies on their own. In fact, guide materials offered during the 10 week mini-course ranged from being very structured and explicit at first, to quite unstructured and skeletal toward the end of the course.

Implementation Phase

Sections of History 110A were taught by the history professor involved in the planning phase of the project. Classes were presented in a large group lecture mode. Students electing to enroll in the critical reading mini-course spent 90 minutes after the large lecture session each week working in small groups.

The first part of each mini-course class session was devoted to a discussion of key concepts from the lecture. This was necessary to help students clarify and consolidate new information. The second part of the class focused on small group review and discussion of assigned text guide material with four students comprising each group. Students completed adjunct guide materials independently; then they defended and refined responses during small group interaction. In the last part of each class session students developed summary sheets combining text and lecture concepts with predictions of possible objective and essay exam questions.

Each week one student in the role of group leader was responsible for conducting a review of guide material and preparing an additional guide activity. Group leaders did a superb job of leading discussions and generating additional guides including time lines, sample quizzes, vocabulary flash cards, and maps and graphs.

Mini-course grading criteria centered on successful completion of the guides and small group participation.

Results

This project was evaluated both internally and externally. The internal evaluation was conducted by the mini-course instructors. Students completed an evaluation form on the guide material after they had acquired experience using each type of guide. Students rated guides according to statements such as the following: "Assisted my understanding of concepts in the text; helped me retain concepts in the text." All guides were given high ratings (see Bean, 1981 and Bean, Wells, and Yopp, Note 1).

A Likert scale questionnaire was given to students during the last week of the mini-courses by an external evaluator. It indicated that students value such adjunct classes. In addition, students showed a significantly more favorable attitude toward the history course than did their control group peers. Moreover, results indicate that students enter the history class with average high school grade points ($\leq$B) perceived history as positively as their above average peers (>B). Average students did as well as their above average peers in the history class when they were enrolled in the adjunct mini-course (Mend, 1981).

During 1981-82, a similar mini-course is underway for students enrolled in Economics 100. Planning and analysis of the text, The Economic Way of Thinking (Heyne, 1980), followed procedures that parallel the History 110A model. Likewise, a mini-course was also developed for History 110B (Bean, Note 2).

Recommendations

A number of research questions have been generated in the course of evaluating this project over a two year period. In particular:

1. To what degree do students transfer strategies acquired in the mini-courses to learning from text in future classes?
2. Which strategies are most often transferred to other academic classes?

A series of studies might be undertaken as an extension of the present project on campuses throughout the UC-CSU system to begin exploring these questions in greater depth.

Reference Notes

1. Bean, T. W., Wells, J., & Yopp, H. K. University Students' Perceptions of Critical Reading Guides in History and Philosophy. Paper presented at the National Reading Conference, Dallas, Texas, 1981. Submitted for publication, 1981.

2. Bean, T. W. Critical Reading: A Guide for Faculty and Students. Second year interim report to the Chancellor's Office Fund for Innovation and Improvement of Instruction, California State Universities. Available from the Reading Department, California State University, Fullerton, 1982.

References

Anderson, T. H. Study strategies and adjunct aids. In Rand J. Spiro, Betram C. Bruce, & William F. Brewer (Eds.), Theoretical Issues in Reading Comprehension. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1980, 483-502.

Bean, T. W. Improving teaching and learning from texts in history and philosophy through systematic staff and student development. Final Report to the Chancellor's Office Fund for Innovation and Improvement of Instruction, California State Universities. Resources in Education, January, 1982, ERIC ED 205 925.

Hancock, D. O., & Moss, A. Literacy in the Disciplines: A Conference Handbook. Reading Department, California State University, Fullerton, Fullerton, California: A Project of the Joint Workshop on Reading and Writing Programs Within the Disciplines, 1979.

Herber, H. L. Teaching Reading in Content Areas. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1978.

Heyne, P. The Economic Way of Thinking. Chicago, Illinois: Science Research Associates, Inc., 1980.

McKay, J. P., Hill, B. D., & Buckler, B. J. A History of Western Society. Boston, Massachusetts: Houghton Mifflin Co., 1979.

Mend, M. R. Evaluation of Program Titled: Improving Teaching and Learning from Texts in History and Philosophy Through Systematic Staff and Student Development. Long Beach, California: Chancellor's Office of the California State Universities and Colleges, August, 1981.

Meyer, B. J. Organizational patterns in prose and their use in reading. In Michael L. Kamil & Alden J. Moe (Eds.), Reading Research: Studies and Applications. Twenty-Eighth Yearbook of the National Reading Conference, 1979, 109-117.

Raygor, A. L. The Raygor Reading Estimate: A quick and easy way to determine difficulty. In P. D. Pearson (Eds.), Reading: Theory, Research, and Practice. Twenty-sixth Yearbook of the National Reading Conference, 1977, 259-263.

Readence, J. E., Bean, T. W., & Baldwin, R. S. Reading in the Content Areas: An Integrated Approach. Dubuque, Iowa: Kendall/Hunt, 1981.

Singer, H., & Donlan, D. Reading and Learning from Text. Boston, Massachusetts: Little, Brown and Company, 1980.

Three Simultaneous Seminars on Learning from Text at the University Level

We asked three professors from UC Riverside to explain how they teach students to learn from texts in their own classes. John Briggs, an Assistant Professor of English and Director of Basic Writing, demonstrated how he teaches freshman students to learn from the first page of a text on "Hamlet." Dan Donlan, Professor of Education, explained the teaching strategy he used in his research project in teaching history students to learn from a text on Cuba. Ovid Tzeng, Professor of Psychology, using a concrete example, communicated how students can learn from psychology texts.

Teaching *Hamlet* to Freshmen: A Method of Reading

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In his recent book, *The Fall of Public Man*, Richard Sennet points out some of the failures of modern communications technology. What he says about the media in general is applicable to written texts as they tend to be used in our systems of education:

> We deny...that there ought to be any barriers in communication between people. The whole logic of 20th Century communications technology has been bent to this openness of expression. And yet, though we have enshrined the idea of ease of communication, we are surprised that the "media" result in ever greater passivity on the part of those who are the spectators; we are [moreover] surprised that under conditions of audience passivity, personality becomes more and more an issue...[1]

According to Sennett, the paradoxical result of a commitment to openness and the free flow of information is an even more difficult problem than we might imagine, for it has not occurred merely because the public or the students in the schools today are not as attentive as they were in generations past. Uncritical worship of "open" communications media has iteself inculcated passivity toward the public substance of communication and cultivated a surprisingly active, ultimately destructive

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[1]Richard Sennet, *The Fall of Public Man* (New York NKOPF, 1977), p. 262.

fixation upon "personality" behind or above the initial communication. By both means, our concept of "openness" has tended to drive out care for the text that conveys and embodies communication.

In the schools teaching of literature, the assumption that literary texts essentially embody the open expression of their authors has had a similar effect. It has given the inexperienced reader, who has few resources for understanding and judging literature, a principle of interpretation that seems transparent but is, in practice, opaque. For the inexperienced, the principle seems at once to dictate that a text be read either as though it were self-evident, or at least self-evident in the author's eyes. In practice, discovering what is self-evident puts a stop to inquiry, interest, and reading itself, or it encourages wild symbolic readings incapable of self-scrutiny because the students assume that the symbolism they think they see right away is identical to the essence of the real literary work. Once the notion of the text's "openness" generates so many irreconcilable readings, not much time passes before "openness" becomes the criterion for evaluating various interpretations: all that matters is that the audience communicate its divergent views openly. Ingenious, frustrated students are sometimes driven to argue that the poet creates his poem merely to allow each member of his audience to express an entirely unique interpretation of the text. It is no wonder that high-school graduates feel literature must make them either posts or poets.

It does not require much imagination to see, as Sennet notes, that

either the personality of the writer or of the audience becomes more and more prominent in such interpretations, the text less and less. The public act of text-making tends to be interpreted as essentially a disclosure of the private self or an invitation for the audience to play out its own predilections. The current emphasis on "process" in composition classes, while defensible in its attempt to go beyond the superficial reading of students' essays for technical flaws, often slides toward a similar ideology of self-expression, letting go of the notion that an essay is a determinate public act that ultimately must be judged apart from the writer's internal struggle to produce it.

In my experience with undergraduates at the university level, I have found that a course that assigns a text such as Hamlet seems to force these issues toward a crisis. Hamlet is, in an important sense, an archetypal text, a work every student of literature feels he must know and yet is tempted to worship rather than read. The more the play intimidates, the more it is assumed to be public knowledge among the educated. To read such a work in the classroom is to risk confronting the broad and difficult contemporary problem of learning from texts.

My first effort to break the spell of the icon consists of a brief discussion of the square brackets that appear on the opening pages of modern editions of Shakespeare's works, such as the page shown in Figure 1. Since these marks indicate what passages the editors have added to their base text (in the case of the Riverside Shakespeare, the passages

The Tragedy of Hamlet, Prince of Denmark

[Dramatis Personae

Claudius, *King of Denmark*
Hamlet, *son to the late King Hamlet, and nephew to the present King*
Polonius, *Lord Chamberlain*
Horatio, *friend to Hamlet*
Laertes, *son to Polonius*
Voltemand, Cornelius, Rosencrantz, Guildenstern, Osric, Gentleman — *courtiers*
Marcellus, Barnardo — *officers*
Francisco, *a soldier*
Reynaldo, *servant to Polonius*
Fortinbras, *Prince of Norway*
Norwegian Captain
Doctor of Divinity
Players
Two Clowns, *grave-diggers*
English Ambassadors

Gertrude, *Queen of Denmark, and mother to Hamlet*
Ophelia, *daughter to Polonius*

Ghost *of Hamlet's Father*

Lords, Ladies, Officers, Soldiers, Sailors, Messengers, *and* Attendants

Scene: *Denmark*]

Act I, Scene I

Enter Barnardo *and* Francisco, *two sentinels, [meeting].*

Bar. Who's there?
Fran. Nay, answer me. Stand and unfold yourself.
Bar. Long live the King!
Fran. Barnardo.
Bar. He.
Fran. You come most carefully upon your hour.
Bar. 'Tis now strook twelf. Get thee to bed, Francisco.
Fran. For this relief much thanks. 'Tis bitter cold,
And I am sick at heart.
Bar. Have you had quiet guard?
Fran. Not a mouse stirring.
Bar. Well, good night.
If you do meet Horatio and Marcellus,
The rivals of my watch, bid them make haste.

Enter Horatio *and* Marcellus.

Fran. I think I hear them. Stand ho! Who is there?
Hor. Friends to this ground.
Mar. And liegemen to the Dane.
Fran. Give you good night.
Mar. O, farewell, honest [soldier].
Who hath reliev'd you?
Fran. Barnardo hath my place.
Give you good night. *Exit Francisco.*
Mar. Holla, Barnardo!
Bar. Say—
What, is Horatio there?
Hor. A piece of him.
Bar. Welcome, Horatio, welcome, good Marcellus.
Hor. What, has this thing appear'd again to-night?
Bar. I have seen nothing.
Mar. Horatio says 'tis but our fantasy,
And will not let belief take hold of him
Touching this dreaded sight twice seen of us;
Therefore I have entreated him along,
With us to watch the minutes of this night,
That if again this apparition come,
He may approve our eyes and speak to it.
Hor. Tush, tush, 'twill not appear.

Words and passages enclosed in square brackets in the text above are either emendations of the copy-text or additions to it. The Textual Notes immediately following the play cite the earliest authority for every such change or insertion and supply the reading of the copy-text wherever it is emended in this edition.

1. Location: Elsinore. A guard-platform of the castle.
2. answer me: i.e. *you* answer *me*. Francisco is on watch; Barnardo has come to relieve him. unfold yourself: make known who you are.
3. Long . . . King. Perhaps a password, perhaps simply an utterance to allow the voice to be recognized.
7. strook twelf: struck twelve.
9. sick at heart: in low spirits. 13. rivals: partners.
15. liegemen . . . Dane: loyal subjects to the King of Denmark.
16. Give: God give. 23. fantasy: imagination.
29. approve: corroborate.

Figure 1. Example of a first edition of Shakespeare's Hamlet. In G. Blakemore Evans (Ed.), The Riverside Shakespeare. Boston: Houghton Mifflin, 1974, p.1141. Reprinted by permission.

their base text (in the case of the Riverside Shakespeare, the passages they have imported into the second Quarto copy-text from the Folio and three other quartos) we begin to read by noting, from evidence on the page itself, that the Hamlet we have before us is a composite of four versions of the play. The questions immediately arise why there should be more than one text and on what principles we presume to combine separate texts. The point that I want to emerge in the discussion is that editors are readers too, and that they must initiate their reading with questions about the fundamental nature of the text.

Our next step is the obvious but easily neglected exercise of reading the play's title, and asking ourselves what we know about its second word, "Tragedy." As before, the discussion first emerges out of material evidence of the simplest sort, but soon begins to touch on questions and hypotheses. Without bringing up what it may already know about Hamlet, the class assembles its opinions about the definition of tragedy, and as I write their statements on the board we discuss possible ordering principles for grouping them and for identifying possible contradictions that may compel us to pose new questions of the text. We then use our list of opinions as a collection of hypotheses about what Hamlet is.

The logic of this method of reading leads us toward the dramatis personae, another list that is ripe for analysis and the formulation of hypotheses, without reference to the body of the play. An observant class, or an instructor acting the role of an observant reader, will begin to notice father-son groupings, the precedence of male characters, the hierarchical ordering within the list of male characters, and indeed Hamlet's status as prince, heir-apparent, but step-son to the king. The

information that the King is uncle to Hamlet and husband to Hamlet's mother is ample grist for speculation about problems of succession that may arise in monarchical regimes. Again, the class pools its knowledge or its ignorance about what monarchy is and how it might work, without direct reference to this particular play, in order to make questions and hypotheses about what is to follow.

At some point, the class is ready to begin reading the body of the play using the same method. My initial question is whether they notice the repetition of any pattern in the speeches of the first fifty lines: is something significant happening more than once? I do not explicitly ask what thematic pattern may be developing because I try not to ask a question that would play to the students' habit of jumping to thematic concerns entirely distinct from the difficult business of reading the first page of the work. Of course, my question does and should invite consideration of theme, but it introduces a measure of inductive rigor to deductive and abductive processes which the students usually tend to isolate from their reading of a work page by page. Forced to read Act I Scene i line by line as a unified work in itself, the students sometime set themselves free of apathetic or wildly syllogistic, symbolic readings and move toward a more reasonable process of questioning, framing hypotheses, and seeking resolutions. There are many possible answers to my initial question: the sentinels repeatedly ask questions; the sentinels repeatedly ask "Who is there?"; the sentinels repeatedly show alarm, vigilance, a sense of duty, a sense of anxiety over not knowing why they must stand vigil on the wall of a darkened castle. Most importantly, they ask "Who is there?" when they see the ghost of King Hamlet. In effect, they establish a pattern of response to Denmark's night that Hamlet in his turn will repeat and elaborate.

Obviously, these remarks stem from a knowledge of the play as a whole, as well as the first scene, but the discussion as I try to elicit it imposes a discipline on the pattern of inferences; merely referring to a later portion of the play in order to explain an earlier part is not sufficient for the logic of scene-by-scene analysis. Rather, we attempt to carry on a sequential reading that anticipates the developments of later scenes. The class therefore reads for discussion just one act for each session, though I encourage them to read the entire play before we begin.

Clearly, there are other inescapable influences, external to the text, on the naive curiosity of students reading scene by scene--especially their common sense, and their capacity or lack of interest in finding uncommon depths in that resource. When we reach the point of the ghost's appearance in the first scene, my question "Why do ghosts haunt us?" is meant to sound their thinking about an ordinary subject largely independent of the text. Once our list of speculations begins to form again on the blackboard, the class is in a better position to see the issue's pychological, moral, or religious dimensions which faddish horror films evade, and to test their ideas against what they observe in the lines leading up to the ghost's appearance. Thus while the characters of Act I speculate on the cause of the ghost's presence, the students undergo and judge the characters' own rich uncertainty about where the action is taking them.

I parallel my emphasis on this sort of sequential reading with frequent questions about how we should parse lines and speeches. I

often cannot tell whether students are following the text unless they construe difficult passages to prove to themselves that Shakespeare's eloquence is surprisingly grammatical. Then I can write on the board their attempts at paraphrase, and lead a discussion about what the new version has captured and ignored in the poetry. (Paraphrase and summary in this context can be acts of interpretation, not reductions that merely "translate" literature.)

Needless to say, this process of analysis, compilation of opinions, and interpretation of paraphrase can lead to the creation of texts: sentences written on the board, impromptu paragraphs written in class, and papers that extend or contradict the class discussion. Writing about the text seems to be, in my experience, the best way to read the text.

I hesitate, however, to call these ways of reading a method. If method is merely technique, it has nothing to do with why we read. It reduces texts to tasks. More important, reliance on mere technique almost guarantees that the technique will be abused. If I reduce my account of the Hamlet class to nothing but a series of steps, I ensure that certain weaknesses in my approach will make the discussion counterproductive. For example, my tendency in one state to elicit opinions from the class, independent of their reading in the text, invites everything from wild associative reasoning to slavish guessing about what I want students to say. That stage also tempts the instructor to manipulate the comments students make, or at the other extreme to abandon the thread of discourse the class must labor to spin. In

general, my recommendations increase the risk of failure for everyone in the class discussion; but they also, I believe, help to make successful reading possible.

The Effect of Paragraph Diagrams on the Comprehension of History Text Among University Students

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The ability to differentiate between the significant and the non-significant in text tends to separate proficient readers from ineffective readers. Much time and effort has been spent exploring teaching methods that will help students recognize main ideas in textual passages (Olson and Ames, 1972; Karlin, 1972; Robinson, 1975; Shepherd, 1978). The word teach is crucial: If students cannot on their own locate main ideas, it is futile to ask them to do so without teaching them specific comprehension strategies.

The traditional method of locating main ideas has been to find "the topic sentence." However, Braddock (1974) found that only thirteen percent of the topic sentences in representative passages from modern prose are located at the beginning of the paragraph, the place where many students are asked to look for them. In fact, Burmeister (1978) and Singer and Donlan (1980) have shown that topic sentences can be found at the beginning, the middle, or end of the paragraph; sometimes the topic sentence is missing or implied.

We college and university instructors of content courses frequently assume that our students are independent readers. In an

informal study conducted with a group of 22 graduate students, it was found that the students had difficulty locating the topic sentence if it was not in the initial position (Donlan, 1980). This suggests that the idea relationships that exist among sentences in a paragraph may be subtle, complex.

Ideas have four relationships: equal, opposite, superordinate/subordinate, and no relationship. Consider the following examples of word relationships from history content:

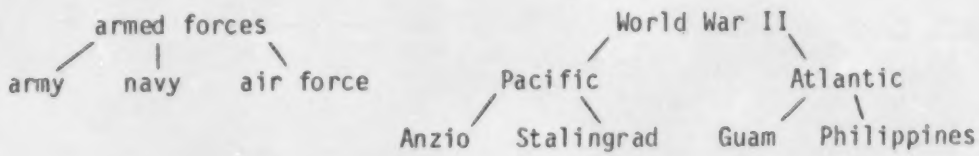
Equal: World War I/World War II

Opposite: Peace treaty/declaration of war

Superordinate/Subordinate: Armed forces/navy

no relationship: NATO/War Between the States

In comprehending history text, students find the superordinate/subordinate relationships the most difficult. Some elementary graphic organizers can assist students in comprehending these relationships:



Horn (1973) adapted Christensen's (1967) new rhetoric by dissecting paragraphs to determine the idea relationships that exist within them. The dissection takes the form of using diagrams to show superordination and levels of subordination.

Diagram of the sentences in a simple paragraph

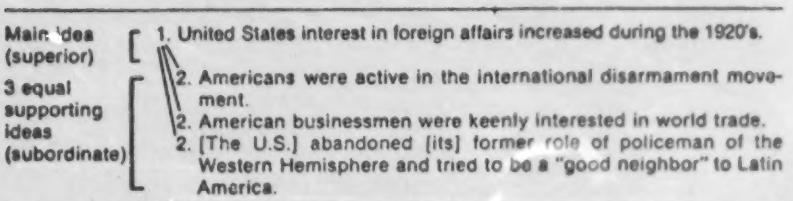
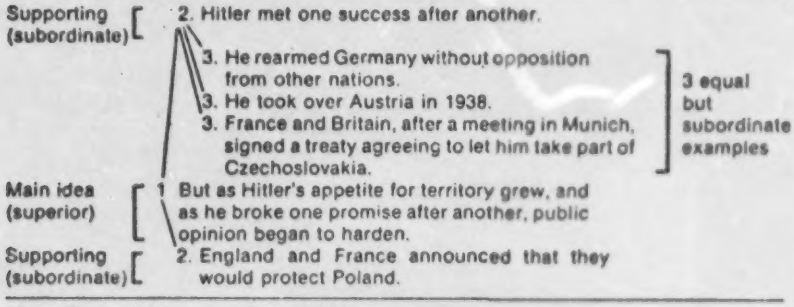

Main idea (superior)
1. United States interest in foreign affairs increased during the 1920's.
3 equal supporting ideas (subordinate)
2. Americans were active in the international disarmament movement.
2. American businessmen were keenly interested in world trade.
2. [The U.S.] abandoned [its] former role of policeman of the Western Hemisphere and tried to be a "good neighbor" to Latin America.

Diagram of the sentences in a complex paragraph*


Supporting (subordinate)
2. Hitler met one success after another.
3. He rearmed Germany without opposition from other nations.
3. He took over Austria in 1938.
3. France and Britain, after a meeting in Munich, signed a treaty agreeing to let him take part of Czechoslovakia.
3 equal but subordinate examples
Main idea (superior)
1 But as Hitler's appetite for territory grew, and as he broke one promise after another, public opinion began to harden.
Supporting (subordinate)
2. England and France announced that they would protect Poland.

*From Chapin, McHugh, and Gross (1971).

If students could be taught the process of dissection through graphic diagrams, their reading comprehension might be improved.

The Study

The Problem

To determine the effect of paragraph diagrams on the comprehension of text among university students.

Hypothesis

Students studying history text passages with paragraph diagrams will achieve a significantly higher degree of comprehension than comparable students studying identical history text passages without graphic organizers.

Subjects

Volunteers from an upper division history class taught at UCR, randomly assigned to two treatments.

Treatments

Experimental. The treatment will consist of six one-hour sessions. At the beginning of each of the first five sessions, each student will receive a short passage of history text using paragraph diagrams. The students will read the passage silently. Next, the students will summarize the passage from memory. Finally, the students will take a multiple choice comprehension test on the passage. On the sixth session, the students will be given a history passage without diagrams. Without further discussion, the students will be asked to (a) summarize it from memory and (b) take a 30-item, multiple-choice test on it.

Control. Identical, with two exceptions. The text passages will not have any diagrams.

Analysis of Data

1. T-test of significance on the means for each comprehension test.
2. Paragraph diagram technique to analyze the student essays to determine if significant differences in organization occur between groups.

Expected Outcome

Students in the experimental group will show on test #6 significantly higher scores than students from the control group. In addition, the effect of the experimental treatment will be marked by divergence of mean scores between groups from session 1 to session 6.

With respect to the essays, those written by the experimental group will tend to reflect the organizational structure of the history passages being summarized to a significantly higher degree than those written by the control group.

REFERENCES

Braddock, R. The frequency and placement of topic sentences in expository prose. Research in the Teaching of English, 1974, 8, 287-302.

Burmeister, L. E. Reading Strategies for Middle and Secondary School Teachers. Reading, Mass.: Addison-Wesley, 1978.

Chapin, J. R., McHugh, R. J., & Grass, R. E. Quest for Liberty. San Francisco: Field Educational Enterprises, 1971.

Christensen, F. Notes Toward a New Rhetoric. New York, N.Y.: Harper and Row, 1967.

Donlan, D. Locating main ideas in history textbooks. Journal of Reading Behavior, 1980, 24, 135-40.

Horn, V. One way to read a paragraph. Elementary English, 1973, 50, 871-74.

Karlin, R. Teaching Reading in High School. Indianapolis, Ind.: Bobbs-Merrill, 1972.

Olson, A. V., & Ames, W. S. Teaching Reading Skills in Secondary Schools. Scranton, Pa.: Intext Educational Publishers, 1972.

Robinson, H. A. Teaching Reading and Study Strategies. Boston, Mass.: Allyn and Bacon, 1975.

Shepherd, D. L. Comprehensive High School Reading Methods. Columbus, Ohio: Charles E. Merrill, 1978.

Singer, H., & Donlan, D. Reading and Learning from Text. Boston: Mass.: Little, Brown, 1980.

Learning from Psychological Text

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How do we teach college students to understand a psychological text? From my experience of the last eight years in teaching various psychological courses, I found that the most effective way is to provide students with a guideline for assimilating the materials presented in the text. This guideline is usually presented in the lab session together with an example text. Students are taught how to analyze a psychological text with this guideline. They are urged to practice using this guideline to analyze other text materials presented in the textbook.

In the first day of class, I tell students that this guideline provides them a framework to analyze any text which deals with topics in experimental psychology. They can use this guideline for analyzing any written text and thus increase their comprehension and memory of the text materials. They can also use it to organize their thoughts in writing about a certain topic in psychology. In a sense, this guideline serves as an adjunct aid for text analysis and a mnemonic device for optimizing memory.

This guideline consists of these questions and my answers to them:

1. What is the definition of the psychological concept which is being discussed?

I tell students in my class that the best way to comprehend a psychological concept is to test this concept against their own behavior. For example, when reading a text about language, one always encounters a sentence which states that human language is a rule-governed behavior. In order to understand the meaning of rule-governed behavior, they should look for sentences in the text which attempt to define the concept of rule-govern behavior. They should evaluate the definitions given by the text and test them with their own language behavior. They should try to generate some agrammatical sentences and present them to a native speaker and a foreign speaker and see which one can detect the incorrect sentences quicker. I also tell students that sometimes the most effective test comes from the unlikely, bizarre example. For instance, do rule-governed behaviors also apply to sloppy speech? The answer is yes, and that makes the concept of rule very powerful. In a psycholinguistic exercise, I observed a student who was amazed about her own language behaviors. She would replace "I hafta go" for "I have to go" but would not replace "I hafta goals" for "I have two goals." I then showed her the sentence "I hafta fish" and asked her should would understand this sentence as "I have to fish" and not "I have two fish." She could then relate her "amazing experience with language" to the descriptions presented in the text. Since psychological concepts deal with human behavior, testing them against one's own behavior increases a person's memory and helps comprehension.

2. What is the history of this particular psychological concept with respect to its development and its measurement?

I ask students to look for sentences in the text which talk about how this concept is measured. They should also look for sentences which describe the differences between its current status and its original form. They should try to trace the history of its development and its changes. The important aspect of charting the history is to uncover the reasons that motivate the changes. For example, in the text which describes whether a chimpanzee can learn language such as ours, they should look for sentences which describe the original attempt to teach chimps human language and sentences which describe why the project failed in the past. Then they should read sentences which describe the more recent success in teaching American sign language to a chimpanzee named Washoe. They should also try to generate answers for why a visual-spatial mode is more suitable for chimps than a vocal-auditory mode. Again, they should look for sentences in the text which may give a clue to the answer. Once they are able to trace the history of changes concerning this particular aspect of behavior, they are ready to go to the next point in the guideline.

3. What are the pro and con views with respect to this particular concept and its measurement?

Since human behavior is probabilistic in nature and since psychological measures are usually limited by many performance factors, it is difficult, if not impossible, to find a psychological concept which can be agreed upon by all psychologists. Even an empirical concept such as short-term memory has at least five or six different definitions

depending upon how it is measured. Thus, I always tell my students to look for sentences in the text which give pro and con views concerning the particular concept. Go back to our example of Washoe and her ability to learn a sign language. There are several paragraphs in the text which present different opinions concerning whether Washoe actually acquired a "system" of human language. Students are urged to go back and read the definitions presented in the beginning section of the text when they evaluate each of the pro and con views. They are reminded of the possibility that maybe the original definition is not useful in resolving the conflict and thus should be modified. Is that the solution adopted by the author of this text?

I found that students develop many idiosyncratic ways of depicting the pro and con views. Some use a simple table which lists all opposing views. Some use Venn diagrams. In one of my classes, I found a student who drew a picture to represent all different viewpoints. The picture looked like a result from a multi-dimensional scaling technique. With these different techniques developed by themselves, they learn to look at a certain concept from different perspectives.

4. What are the theoretical and practical implications of this particular concept?

Finally, I ask students to look for sentences which describe the theoretical importance of this concept. Do they agree with the conclusion of the author? I also ask them to see whether the text mentions any practical application of this concept and of techniques developed from this concept? In the example text about chimps' language learning

ability, it is mentioned that the Rumbaughs and their Atlanta colleagues have been applying their techniques to profoundly retarded children with great success. If techniques such as theirs can lead to communication with these children, behavioral modification treatments would be greatly facilitated. I found that when students of psychology discover the practical applicability of certain psychological concepts, they seem to be motivated to read more psychological text. I only hope that they transfer their text analysis behaviors learned from my psychological class to other text materials.

A guideline such as presented here has two important dimensions. One is that it provides a macro-structure which is useful for subsuming micro-information at the sentence levels into a coherent theme and for making it easy to do the summary at the end of reading. The other is that certain mnemonic aids are developed which are useful for optimizing both comprehension and memory. Students can use this guideline, once they have enough practice on it, to organize their thought during reading as well as writing.

In recent years, cognitive psychologists and reading researchers have been making great progress in the study of text analysis and reading comprehension. The knowledge generated from this body of research should be summarized and made known to college teachers of all different fields. The learning from text project will be an important mission for years to come.

Teaching Strategies

for Learning from Text

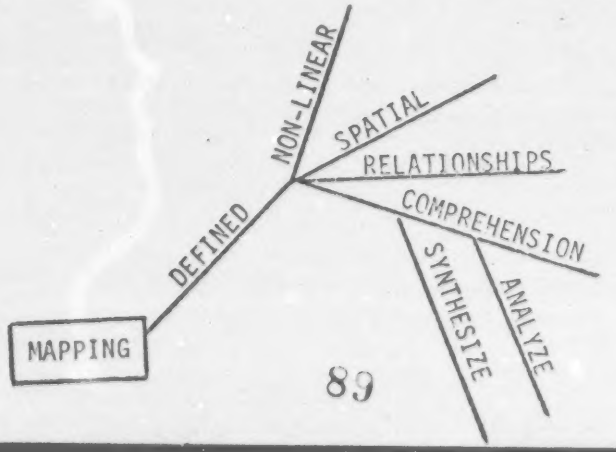
After John Briggs, Dan Donlan, and Ovid Tzeng's introductory talks, members of the seminars presented their own strategies for teaching students to learn from text. All of the strategies emphasize learning from text. But the same strategies can be used and assessed for their effects on writing. In fact, Dan Donlan is using both criterion referenced, objective tests and written summaries of what students recall from their texts to evaluate the effects of his instructional strategy. This research project was only described at the conference. He will report the results of his collateral project in an LFT Technical Report this fall as will other campus coordinators when their projects are completed.

Cognitive Schemes and Reading in the Content Areas

Owen Boyle

University of California, Berkeley

Cognitive mapping, a technique which spatially arranges information, assists students with learning from their texts.[1,2] Because mapping is non-linear, because it is spatial, because it illustrates relationships, it is a powerful tool for improving comprehension and helping students synthesize and analyze information. A map is a graphic representation of a written or oral composition including only key words. Using a map, students organize ideas; produce and receive information; and think, imagine, and create a product uniquely their own. Mapping aids comprehending because it teaches students to differentiate among primary, secondary, and tertiary ideas; it is a simple and useful procedure for organizing reading act vities. When students make maps of books, essays, or lectures, they discover that the process makes the work accessible to them for long periods because the information is stored in long-term memory and because they have a scheme for retrieving it easier. A map of the information above might look like this:



Mapping vs. Outlining

Mapping has several advantages over outlining:

*Mapping is easy to share.

*Mapping illustrates relationships.

*Mapping presents a whole structure.

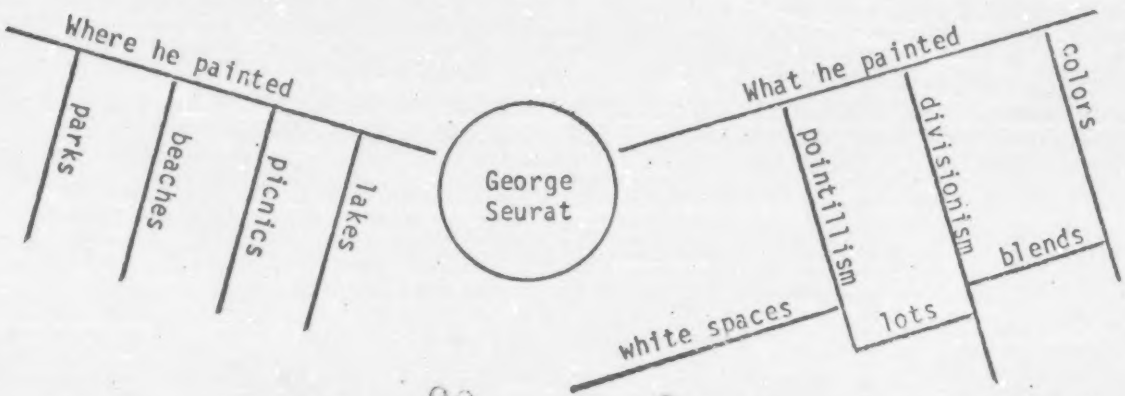
*Mapping is organic (Students can continue to add to their map as their comprehension improves).

*Mapping is personal and idiosyncratic.

*Mapping is easily learned.

Mapping and Comprehension

In this short paper there is only time to illustrate mapping with one example. I chose an eight-year old girl's 'research' paper to illustrate the effect mapping can have on assisting even a small child's comprehension. The following paper by Jenny, a second grader, illustrates what can happen when a map is used to do a research paper, and what can happen when a map is not used. Jenny mapped the first parts of her paper, but neglected to map the last part. The result is an analysis and synthesis of her reading in the first part of the paper, followed by copied polysyllabic words which were incomprehensible to the girl. The mapped part of her essay shows a clear understanding of the material; the unmapped part is simply copied.



This part of Jenny's paper was mapped first:

> George Seurat did not paint pointillism. he called his painting divisionism and it often got mixed up with pointillism. Pointillism leaves white sections on the canvas. And George Seurat painted with out leaving spaces.
>
> In his pictures he uses very many colors. Especially in his sky. Here are the colors he uses: green, blue, light blue, white, gray. But all the different colors blend together to make one color.
>
> He paints of outdoor places and at the places the people are having fun. Here are the places he paints, parks, beaches, picnics and lakes. You see in his pictures people sailing, people strolling, children bouncing balls and holding their mother's hand, and people with their pets, people in shade under their umbrellas, people fishing and canoeing.[2]

This is the part of the paper which Jenny did not map:

> Impressionist art is natural and direct. Seurat's paintings are stiff, and figures seem immovable.
>
> In the painting Courbevore Bridge the striking power of colors based on the contrast of tones is sustained by a pattern of aspiring verticals broken only by the hazy, distance horizontal of the bridge and the dark diagonal of the riverbank.

The last paragraph above was copied directly out of the encyclopedia and is incomprehensible to the girl who wrote it. Fortunately, she ended in her own words:

> I think Georges Suerat's paintings are good because of the colors he uses and the way he uses them.
>
> George Seurat died of diptheria at the age of 31. George Seurat knew a lot about dots and now so do you.[2]

The remarkable differences between the mapped and unmapped versions of Jenny's writing only give us a glimpse of what older students can do with this technique. Because mapping takes advantage of our verbal and visual abilities, it adds a new dimension and power to all language activities. This simple visual technique, taught in just a few minutes, can help all our students read better.

Footnotes

1. Marilyn Buckley Hanf. Mapping: A technique for translating reading into thinking. Journal of Reading, 1971, 14, 225-307.
2. Owen Boyle and Marilyn Buckley Hanf. Mapping the Writing Journey, University of California, Berkeley, Bay Area Writing Project, 1981.

Learning from Text: MATHEMATICS

James Duggins and John Tibbetts

San Francisco State University

Reading mathematics texts to learn may be more difficult than any other content field because mathematics involves more abstraction, more difficult concepts, and contains less redundancy than most prose presentations of language. Especially at the high school level do teachers need to analyze factors of readability in their texts and their own presentation in order to help students learn from such text. The famous mathematician Lyman Behrs has said, "Calculus is read with a pencil."

Some of the more salient features of mathematics text difficulty are:

1) Translating verbal symbols into mathematic symbols and vice versa
2) Selecting appropriate processes to solutions
3) Identifying significant facts
4) Following directions precisely

Consider the following problem:

> Vectors of force, of displacement, of velocity, and of acceleration are all mathematical quantities which are defined by the parameters of magnitude and direction and therefore require a graphical representation which is capable of quantifying both the magnitude and the direction. A vector is represented by a line drawn on a set of cartesian coordinates where the axes are used to determine the direction and where the distance between the initial and terminal points

> determines the magnitude. A vector can illustrate a five-hundred-mile flight between city A and city B, which is 30 degrees northeast of A.

This problem is little more than a complex definition that students are to understand, but the abstract concepts are difficult for them to grasp. The presentation of the problem in verbal form obfuscates the learning. An analysis of the problem might include:

1) Begins with variety of types of vectors
2) Specifies mathematical method of illustrating vectors
3) Ends with specific example
4) Presupposes knowledge of graphing
5) Technical vocabulary

The same problems, here seen in the text, are often inherent in the presentations of content area teachers.

A teacher might help students learn from text by using a "chalk talk" technique. As students are reading the text, the teacher analyzes the problem visually at the chalkboard. Included in such a demonstration at the board would be:

1) Review of technical terms, e.g. "parameter" and "perimeter"
2) A graph to assist oral review
3) Detail graph to illustrate the last sentence

Cloze as a Teaching Strategy

Ruth Hartley

California State University, Sacramento

The Cloze procedure is a term given to the practice of having students read passages in which some words have been deleted. Words are generally deleted systematically, such as every fifth word. The students are to fill in the deleted words.

However, as a teaching strategy, rather than delete every fifth word, delete those words that are important to understanding the content of the passage. The words needed to fill in the blanks may be listed below the passage in random order. The student then selects the appropriate words to fit in each blank.

When the students have completed the task, the correct responses should be given and discussed in relation to the meaning of each response to the content of the passage.

A brief example of a passage is shown below:

Rocks exposed to the (1)_____ slowly change. Air, water, and materials from living things can (2)_____ with (3)_____ in rocks to (4)_____ or even remove them.
(5)_____ is a process by which rocks change into soil. It may result from both (6)_____ and (7)_____ action on the rocks.

weathering	atmosphere
alter	chemical
react	minerals
physical	

*Source: Norman Abraham, et al. Interaction of Earth and Time (2nd edition), Chicago: Rand McNally Co., 1976, p. 264.

Teaching a Text: Drug Laws in American History

Diane Lapp and James Flood

It has been argued that reading comprehension is an interactive process involving the interaction of the reader with the text (Rumelhart, 1976). To comprehend a text, a reader uses prior knowledge (sometimes referred to as schemata) to make sense of the text which is presented in a specific rhetorical form. It has also been argued that comprehension ability is determined by the degree of familiarity the reader has with the content and structure of the text. In other words, comprehension requires that the reader has content and structural schemata for the text (Lapp and Flood, 1983; Singer and Donlan, 1980). Furthermore, comprehension is affected by the clarity of the passage in presenting both content and structure within a specific rhetorical form.

In order to instruct students in reading the appended text, "Drug Laws in American History", the teacher should attempt to elicit as much prior knowledge as possible about the topic of the text. This elicitation would stimulate students' use of relevant content schemata and might entail a discussion of student opinion on marijuana. After students become involved in the discussion, the teacher should ask: "Why do you think people are against marijuana usage? Why is marijuana illegal?" This discussion would serve as an introduction to the actual text. It would also allow the teacher to introduce a discussion on discourse structure/rhetorical form.

Then the teacher should discuss students' familiarity with the

discourse structure of the passage. The discourse structure of this particular passage is a combination of list and cause and effect. First, the teacher should discuss the list structure by asking the students: "What clues tell you that you are reading a list of related items?" This question should be based on a second text and not on the actual text the "Drug Laws" (see appendix to this paper). The students may volunteer actual lexical clues (and, however, etc.) from this second text. If they are unable to find these clues, the teacher should provide the students with examples. This will help students to understand that texts can be cued by lexical items. Through this technique it will become obvious to students that texts without explicit lexical cues are more difficult than texts that do not contain these cues. The same procedure should be repeated for the cause and effect structure; students should be made aware of the cues that can be found in a cause and effect passage.

After introducing the students to both the content and structural schemata, a traditional Directed Reading Approach should be followed (i.e., pre-teach relevant vocabulary, provide springboard questions, reading, follow-up questions). The follow-up questions should contain references to both content and structural issues.

References

Lapp, D., & Flood, J. Teaching Reading to Every Child, Second Edition. New York: Macmillan Company, Inc., 1983.

Rumelhart, D. "Toward An Interactive Model of Reading," Technical Report No. 56, Center for Human Information Processing, University of California, San Diego, 1976.

Singer, H., & Donlan, D. Learning from Text. Boston: Little, Brown Company, 1980.

Drug Laws in American History

(Text)

State by state drug laws are changing. Lawmakers are passing new laws. In many cases the laws are becoming less strict.

However, this was not always the case. In the early 1900's, lawmakers wanted more strict laws. Thus, the lawmakers who wanted stricter drug laws passed a number of laws. First, they passed the Harrison Act. Before this act, a number of drugs were legal. It was unclear why some drugs were legal and others were not. This act banned all drugs. The lawmakers claimed that all drugs were evil. Therefore, the government should protect people by making the use of drugs illegal.

Second, the Eighteenth Amendment was passed. This banned the use of alcohol. The Amendment was as strict as the Harrison Act. This law was not very effective because as the police enforced the Amendment, the demand for alcohol increased. If someone wanted alcohol, he had to turn to criminals. "Rum-running" (sneaking alcohol into the country) and the use of "illegal stills" (for making whiskey) became popular, and in neither case was law enforcement effective. As a result, the amendment was repealed.

Third, the Marijuana Tax Act was passed. This law placed a heavy tax on the sale of marijuana. The lawmakers who wrote the law argued if a heavy tax were placed on marijuana, then people could not afford to buy it. Under this law, if a person was caught with marijuana, then he could be jailed for seven to twenty years. If a person were caught more than once, then he could be jailed from ten to forty years.

Today, some of these laws are changing. The strict marijuana laws are being eased in some places. However, marijuana still remains illegal to use, buy, or sell. The same is true for most of the other drugs mentioned in the Harrison Act. For one to know whether these laws will be changed is a difficult question. Only time will tell.

This text is an adaptation from the following sources:

"Drug Laws", Article 26 of Drugs. Published by Social Issues Recources Series, 1978.

"Should Marijuana Use Be Decriminalized?", Article 28 of Drugs. Published by Social Issues Resources Series, 1978.

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UC Davis

Project Report

The UC Davis project report is a separetely funded project that conducted five separate studies last year on basic skills. However, the Davis Project decided to adopt the STEP Reading Test so that it could compare its results with the LFT Project. Carlton Spring, director of the project, delivered the first part of the report and Caroline Turner explained the second part.

An Experimental Reading Course for College Freshmen

Carl Spring and Caroline Turner

University of California, Davis

This report describes an experimental remedial reading course which was given to a group of UC Davis freshmen with low reading scores. The objective of the course, which was conducted during the Winter quarter of 1981, was to improve understanding and retention of college-level expository material. The project was funded by the Basic Skills Research Program located on the UC Davis campus. This research program supports applied research dealing with the development of college-level basic learning skills. The program is now supporting several projects in the areas of reading, writing and mathematics.

The experimental reading course was taken on a voluntary basis by 26 freshmen who scored at our below the 10th-grade level on the S.T.E.P. college reading test published by Education Testing Service. Twelve of these students had been admitted to the University under the special-action admission program. The mean SAT-Verbal score of students taking the course was quite low ($\underline{M}$ = 314, $\underline{SD}$ = 18), and no students in the group had a score exceeding 400. Their mean SAT-Mathematics score, however, was considerably higher although low for UCD freshmen ($\underline{M}$ = 464, $\underline{SD}$ = 90).

The course met twice a week, with each meeting lasting 1.5 hours. Students received three units of credit and were graded on a pass or

no-pass basis. To obtain a passing grade, students were required to attend every meeting and complete every homework and in-class assignment. All students complied with these requirements.

Students read 24 expository articles that were considered appropriate for regular UC freshmen. The articles, which varied from about 1,500 words to about 3,000 words, dealt primarily with social studies topics, but included science and a few business articles. Most of these articles were assigned for homework along with appropriate text-processing exercises, and the remainder were used in pretests and postttests at the beginning and end of the course.

At the beginning of each meeting, students took a test on the assigned reading material. On most days this was a free-recall test in which students were required to write a summary of the assigned article, capturing the main ideas and reflecting the author's organizational structure. These were graded wholistically and returned each day with two scores; one score for comprehension and recall of main ideas, and another score for organizational structure. Occasionally students were given a cued-recall test. Both types of tests were used for pretesting and posttesting.

Following daily testing, a brief class discussion of the article on which students had just been tested was conducted. In addition, a brief discussion of the article assigned as homework preparation for the next meeting was conducted. The purpose of the latter discussion was to activate background knowledge that might be relevant to the assigned article, and to provide an advanced organizer for the reading.

Following these discussions, instruction and in-class practice on a text-processing technique was given. This instruction included a description of how the text-processing technique was to be implemented in the following homework assignment.

Several text-processing techniques were taught. Only those associated with our objective of teaching students to identify sentences containing main ideas will be presented in this report. Our objective was for students to identify sentences containing the main ideas of a text in such a way that, if connecting material were eliminated, those sentences would represent a reasonable summary of the text. An example of a portion of a well-written text in which the main ideas were underlined is presented in Appendix A. The reader will note that if the underlined propositions are read without reading the connecting material, a coherent summary of the text, which we call the thread of discourse, is retained. The coherence of such a summary, of course, will depend on the quality of the original writing.

With little useful work in the literature to guide our selection of a method to teach students to identify main ideas, we settled on two approaches. The first approach was based on our conviction that many skills are learned by doing, or by practice with corrective feedback, rather than by direct verbal instruction. As noted by Herbert Simon in drawing a distinction between knowledge acquisition and skill acquisition, people do not learn to ride bicycles simply by having the principles explained to them.

Our first approach, therefore, was to ask students to underline the sentences that they thought would best capture the gist of every article read as homework. After being tested on each article, they were then given another copy of the article which had been underlined by a panel of three good readers and asked to compare their own selection of main ideas with that of the panel. We think that this approach has merit, but needs to be strengthened in two ways. First, since the process of comparison requires time for reflection and is therefore not practical as a daily in-class exercise, a mechanism to insure that it is completed out of class needs to be implemented. And second, occasional opportunities are needed for in-class discussion of instructive discrepancies between the choices of students and those of the panel.

Our second and complementary approach to teaching students to identify main ideas was based on the principle that main ideas acquire their relative importance from their logical relations with other propositions in the text. We therefore taught students to look for the rhetorical devices that writers use to express those logical relations. In this, we were preceded by a good deal of theoretical and applied research by Bonnie Meyer and others.

Our approach differed from that of other workers, however, in two ways. First, we developed and taught a larger set of rhetorical relations than others have used. We did this because we found that in characterizing textual relations, finer discriminations can usually be made than are possible with smaller sets. The rhetorical relations which we taught are listed in Appendix B along with an example of each.

Our approach also differed in the way we taught students to use rhetorical relations. Rhetorical relations may be explicitly identified at a very detailed level or at a more global level. For example, others have taught college students to map rhetorical relations connecting concepts within sentences and within paragraphs. We feel that this level of application is too detailed to be practical. Meyer, on the other hand, has stressed the importance of rhetorical relationships which connect only the main ideas at the top levels of inverted tree-like text structures. Our approach was similar to Meyers', except that we taught students to identify linear text structure, which we call the thread of discourse, rather than a branching tree-like structure. In implementing this technique, we taught students to indicate rhetorical relations with notes in the margins of the text. This is illustrated in Appendix A in which the main ideas that are underlined form a coherent summary of the text, and in which this coherence is due to the rhetorical relations connecting pairs of main ideas.

Although we spent several days on this technique, including in-class and homework exercises, it was difficult for some of our students. Since we believe that the technique is a valuable learning experience, we now feel that even more time should be spent on it, and that it should be introduced early in the course.

The effectiveness of the experimental course was evaluated by comparing pretests and posttests. In general, we found performance gains that were of practical as well as statistical significance. More detail concerning the evaluation, as well as additional information concerning

the curriculum, can be obtained from a technical report available from the UC Davis Basic Skills Research Program.

In the future, we will explore the possibility of integrating reading instruction with instruction in remedial composition courses. The method would require students to summarize an expository text after having first studied it using techniques described in this report.

FACE-SAVING MEMORY

BY EUGENE WINOGRAD

Some people never forget a face. Others—to their embarrassment—often do. Here's what science can tell us about improving our facial memories.

The ability to recognize faces is not just an important social skill, it is absolutely essential for people in many occupations. The policeman and the politician, the doorman of an apartment building, the receptionist and the bank teller all come in contact with vast numbers of people and must be able to sort out the familiar face from the strange one.

Not all people have this ability to the same degree. Still, most of us are good enough at it to remember those we encounter frequently and to avoid embarrassment (the only exception being victims of certain forms of brain damage, usually from stroke, who exhibit a condition called prosopagnosia in which all faces appear unfamiliar, as in a bad dream). For those who would like to improve their memory for faces, mnemonic improvement books propose a few strategies. But recently, behavioral scientists have begun to clarify the cognitive processes that are involved and have proposed more effective learning methods.

Studies by Elizabeth Warrington at the National Hospital in London, Gordon Bower at Stanford, and my own studies at Emory University in Georgia suggest that one of the best strategies when meeting a person for the first time is to ask yourself a particular kind of question such as, "Would I buy a used car from this man?" The purpose is not to associate the face with positive or negative feelings about the person. You can get equally good recall by asking if the person looks like a teacher, or if he or she appears to be shy, or a host of other such questions. Nor does it matter whether the answer is yes or no. People are equally likely to recall faces they regard as trustworthy or not trustworthy, intelligent or lacking in intelligence. It's not the answer but the question that counts: the very processes needed to judge a face in this way also seem to increase recognition.

How does this method differ from older, standard techniques? The most common strategy is one that is often taught to policemen, perhaps the only professional group that receives special training in remembering faces—in order to improve their capacity to describe criminal suspects. In Atlanta, for example, policemen are taught to note certain physical features of the suspect: shape of head, color and type of hair, and distinguishing marks, such as scars. To assess the methods that such seasoned observers use, we tested a group of experienced police officers at the Atlanta Police Academy. We showed them a series of 50 photographs of unfamiliar people and asked them to try to remember as many as they could. Although we did not instruct them to use any particular strategy, most of the officers informed us later that they had studied the features that their training emphasized. What we discovered suggests that their strategy was not of much use. For, when they were shown 30 of the same faces again mingled randomly with 30 new ones, the officers recognized about the same proportion of them as did a group of college students given the same test who had received no training and used no special strategy.

In our own work at Emory, we have used a more elaborate experimental procedure based on Warrington's method. We divide our volunteer subjects into three groups and show them 50 photographs of people they have

RHETORICAL RELATIONSHIPS

Relationship Labels	Examples of Relationships (From A to B)
1. Property	A. Cancer is a serious medical problem. B. There are many different kinds of cancer.
	A. Cancer is a serious medical problem. B. Scientists believe that some types of cancers may be caused by viruses. Note: This is not a Result Relationship because the cause and result are both given in Sentence B.
2. Description	A. She is taking Biology 1. B. This is an introductory course which includes a lab. Note: This may also be considered a Property Relationship because two properties of Biology 1 are given in Sentence B.
3. Definition	A. We will study several useful mnemonic techniques. B. These are techniques that can be used to help you to remember things.
4. Example	A. Human rights are violated in many countries. B. For instance, it is said that dissidents are often sent to mental institutions in the Soviet Union.
5. Part	A. His financial empire is enormous. B. It includes a daily newspaper in San Francisco.
6. Comparison	A. One solution to the problem is... B. A better solution is...
7. Alternative	A. You can solve the equation by... B. Another method of solving the equation is to... Note: This is not a Comparison Relationship because something in Sentence A is not compared to something in Sentence B.
8. Sequence	A. To compute an average score, first add together all of the individual scores. B. Then divide this total by the number of individuals.

Continued

Relationship Labels	Examples of Relationships (From A to B)
9. Result	A. His carotid arteries are clogged. B. This is preventing blood from flowing to his brain.
	B. He has been having fainting spells. A. The reason is that his carotid arteries are clogged. Note: In this example, the reason, which is given in Sentence A, follows the result, which is given in Sentence B. The arrow which indicates the relationship would be drawn, as usual, from A to B. The arrow, therefore, will point backward rather than forward.
	A. We compared Method 1 with Method 2. B. Method 2 turned out to be the most efficient. Note: This is not a Comparison Relationship because the things being compared are both given in Sentence A.
10. Solution	A. The carotid arteries sometimes get clogged as people grow older. B. Neurosurgeons can perform an operation which opens the carotid arteries.
11. Answer	A. What causes hyperactivity in children? B. According to one very controversial theory, artificial food colors and flavors are the culprits.
12. Conclusion	A. There is a high incidence of lung cancer among cigarette smokers. B. One possible interpretation of this relationship is that smoking causes lung cancer.
13. Negation	A. According to one theory, artificial food colors and flavors cause hyperactivity. B. Little evidence has been found, however, to support this theory.
14. And	A. One result is that... B. A further result is that...
	A. One example is... B. Another example is...

Microstudies

Collateral Research Projects

on Nine Campuses

Each campus coordinator described his or her microstudy. The final report on these projects will be disseminated through a series called LFT Technical Reports. The series will begin in October and continue through the academic year.

Project Reports from Nine Campuses

1. CSUC San Bernardino: Peggy Atwell and Adria Klein

The purpose is to determine the effects of students' years out of school on the learning and retention of text. Variables include age, sex, years out of school, jobs held, career goal, and activities out of school. Approximately 75 students in freshman English classes participated in this study.

2. CSUC Dominguez Hills: Marjorie Holden

A questionnaire on teaching students to learn from text was distributed to all faculty. Most faculty returned the questionnaire. The results will be analyzed and reported in the fall.

3. CSU Fullerton: Tom Bean, Harry Singer, Jack Sorter, and Charles Frazee

Plans were formulated and negotiations conducted for a year-long study on teaching 10th grade students at the high school level to learn from their texts in World History. The long range plans for this project call for a longitudinal study to determine whether this instruction at the high school level articulates better with instruction in history at the university level. Extramural funding is being sought for this project.

4. CSU Sacramento: Ruth Hartley

Correlations will be computed between items on the STEP Test in the various subject areas with grade point average in each subject area.

5. San Diego State University: Diane Lapp and James Flood

The purpose of this study is to investigate the relation between student's prior knowledge, syntactic competence, textual cohesion and college reader's comprehension of cause-effect expository texts designed to assess three variables: topic familiarity (as a measure of knowledge), cohesion (as a measure of discourse structure type) and syntax (as a measure of language development).

Project Reports from Nine Campuses
(continued)

6. San Francisco State University: James Duggins and John Tibbetts

To test all entering teacher candidates in Secondary Education prior to their participation in a basic course in the teaching of reading, which is required of all secondary teacher candidates. The same battery of tests will be administered (Reading STEP 1A and the Carter Study Methods Survey) and GPA data gathered.

The purpose of this study will be to ascertain if students (largely graduate students with a few possible upper division students) selecting teaching as a career are significantly different in reading ability and study skills from the typical freshman population at San Francisco State University.

7. UC Berkeley: Robert B. Ruddell and Owen Boyle

The purpose of this project is to test the hypothesis that a combination of instruction in cognitive mapping, development of flexibility in reading, and improvement in vocabulary skills will result in significantly greater achievement in the experimental group's grade point average in the course and in its overall grade point average as compared with a control group. The writing ability of the two groups will also be compared to determine whether the instructional treatments also statistically differentiate the two groups on this dependent variable.

Both groups were enrolled at UC Berkeley in English 1A, 1B, and Subject A during the Spring 1981 semester. Approximately 30 students will be in each group. But the treatment group consists of volunteers enrolled in an adjunct course that meets 1½ hours/week for the entire quarter.

8. UC Davis: Julius Sassenrath

Effect of interspersed questions in a biology text will be used to determine whether they had any significant effect on enhancing student achievement.

Project Reports from Nine Campuses
(continued)

9. UC Riverside: Dan Donlan

Students enrolled in a history course will be randomly assigned to experimental and control groups. The experimental group will receive instruction on differentiating content in a history text on Cuba into an hierarchical structure. (See teaching strategy in section on Three Simultaneous Seminars.) Both groups will be assessed on criterion-referenced tests and written recall of assigned material. Hence, the effect of the instructional strategy will be evaluated on two criteria: comprehension and writing ability.